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Air Force CIVIL ENGINEER

**Preparing
for WAR**

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Maj Gen Earnest O. Robbins II

Photo by Keith Fried



Thank You and Farewell

Publication of this issue of our magazine coincides with the end of my Air Force career and my tenure as The Air Force Civil Engineer. While I won't go so far as to say the past (almost) 34 years have flown by, I can honestly say they've gone faster than I, or anyone, could imagine. When I first came on active duty as a second lieutenant at Wright-Patterson AFB in 1969, I could never have dreamed how my life and my career would play out. At that point in time, such a dream would have been more correctly categorized as fantasy.

But now here I am, ready, and in fact eager, to make the move onto the "USAF Retired" list. My greatest regret is that I have never been able to personally thank all the tens of thousands of officers, NCOs, airmen and civilians who've worked so hard to ensure we Civil Engineers always come through for our Air Force. No matter how tough the job, how short-handed we are, or how bad the funding situation has been, we deliver!

As a result of our efforts, commanders have been able to go about "Job One" — projecting airpower whenever and wherever needed in our nation's interest. Meanwhile, we have made Air Force installations the absolute best in the Department of Defense in terms of quality of life for our people, functionality for the workforce and appearance. Our fire protection professionals, EOD specialists and readiness experts are absolutely world class and provide unmatched safety and emergency response capabilities for our people wherever the Air Force operates.

While all my years in blue have been interesting and exciting, I must categorize these past four years as extraordinary, not just for me, but for our Air Force in general and for Civil Engineers in particular. Despite incredible stresses on the personal and professional lives of our people as we've spread our "footprint" across the globe, we've continued with the same dedication, perseverance and can-do attitude I first saw way back in 1969. My pride in our career field is based not on the breadth and depth of the programs we run or on the size of the budgets we manage, but on the quality of the products and services we deliver and, most importantly, on the talent and enthusiasm of those within our Civil Engineering family. Because I'm confident in the officers, NCOs, airmen and civilians serving in Civil Engineer squadrons and on headquarters staffs at every level, I have no doubt this tradition of commitment to excellence and selfless service will continue long after I'm gone.

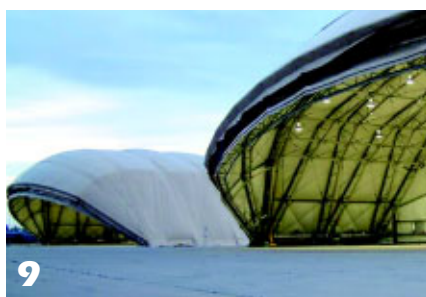
I wish I could look each one of you in the eye, shake your hand and say thank you, but that's impossible. So please accept this as my "Thanks" and sincerest wish for your safety and well-being as you continue to be essential members of the world's greatest Air and Space Force.

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Before the war in Iraq could begin, the groundwork was laid by Air Force civil engineers deployed to Southwest and South Central Asia — including a team from the 819th/219th RED HORSE Squadron that completed a massive airfield project near the Arabian Gulf, and a team from the 49th Materiel Maintenance Squadron that erected portable shelters for B-2 bombers.



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SSgt Pratt Vivekanandan uses the Global Positioning System to check elevation as MSgt Larry Lenneman, structural superintendent, and SrA Tom Phelps, structural craftsman, ensure a runway light is aligned properly at a forward deployed location in November. All are from the 819th/219th Expeditionary RED HORSE Squadron. Story page 5. (Photo by TSgt Deb Alvarado)

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CE Goes To **WAR**

As this issue of *Air Force Civil Engineer* prepared to go to press, the United States went to war with Iraq.

Operation IRAQI FREEDOM began March 19, but a good portion of the groundwork was laid months ago by Air Force civil engineers who prepared bases throughout the theater, set up bare base camps, evaluated airfield pavements to secure flight operations, and performed myriad tasks to support future operations.

As of mid-March, more than 2,600 Air Force civil engineers were deployed to Southwest and South Central Asia, supporting 18 air and space expeditionary units on 23 bases in 11 countries. Some of those bases had been in operation since October 2001.

Prime BEEF troops were busy performing beddown operations for incoming missions, erecting structures to house a multitude of functions and maintaining airfield lighting and aircraft arresting systems. They were performing day-to-day base support functions such as power production and providing electrical service, fire protection and explosive ordnance disposal, as well as specialized functions such as nuclear, biological, and chemical defense.

RED HORSE operations in theater were coordinated by the 1st Expeditionary RED HORSE Group. Three different RED HORSE units, the 823rd Expeditionary RED HORSE Squadron, the 819th/219th ERHS and the 307th ERHS, were involved in construction at four bases in theater in mid-March, committed against millions of dollars in construction projects.

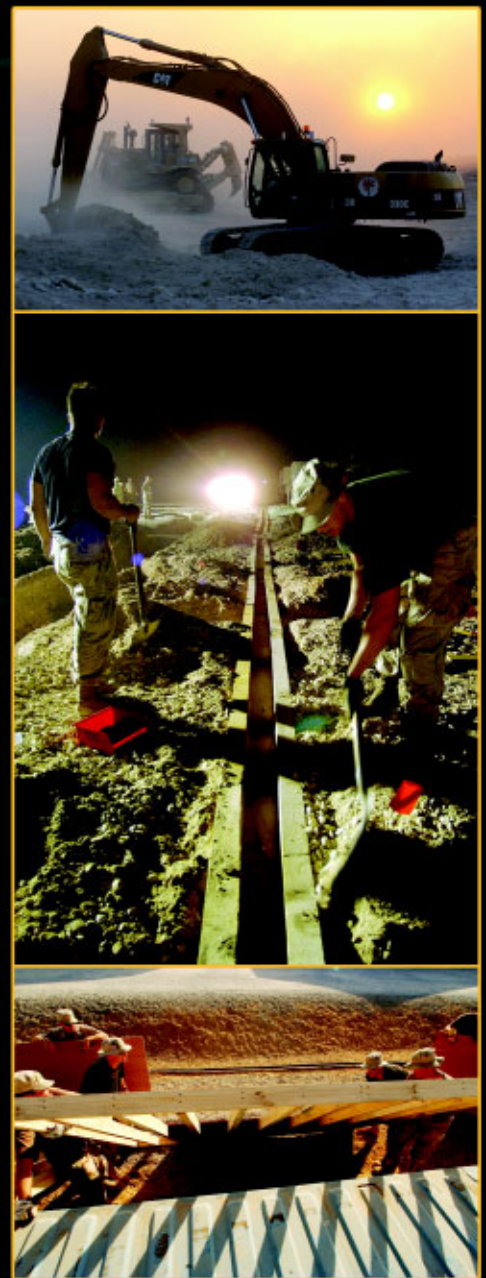
A valuable force multiplier saw extensive use during the buildup. AFCAP, the Air Force Contract Augmentation Program, allowed engineers to use contingency contracting authority to more easily procure materiel and specialized services such as heavy equipment, construction materials, engineering and geotechnical expertise, and other resources necessary to accommodate and sustain operations. By mid-March, AFCAP had been used to respond to more than 100 task orders totaling \$446 million.

“Our ability to lease equipment and vehicles and obtain contract support from suppliers in the region gives us great latitude when deploying,” said Col Josuelito Worrell, contingency support director, Air Force Civil Engineer Support Agency, “and it frees up our civil engineers so they can focus on their core competencies.”

As the operation continues, AFCAP will continue to be used to provide noncombatant support, including humanitarian missions, Worrell said.

This issue of *AFCE* contains several stories highlighting the work civil engineers have done behind the scenes to prepare for the conflict we’re now supporting. There is no way to predict how long the operation will last, but it’s easy to predict that civil engineers will continue to lead the way long after the hostilities have ended. (*AFCE staff report*)

Air Force civil engineers performed a myriad of tasks to prepare for operations in Iraq.
(DOD photos)



RED HORSE Triumphs with Technology

A massive airfield project puts civil engineers on the leading edge of military construction

by Capt Ryan J. Novotny
819th ERHS

Just two short years ago a small group of personnel from three RED HORSE units began planning the largest and most complicated military construction effort ever undertaken in RED HORSE's 37-year history. Then, Operation ENDURING FREEDOM energized many new heavy construction requirements, placing the \$18 million rehabilitation of the airfield at a forward deployed location solely on the shoulders of the 819th/219th Expeditionary RED HORSE Squadron from Malmstrom Air Force Base, MT. The massive undertaking was driven by an approximately 2,000-foot section of failed asphalt on the runway and parallel taxiway at this deployed operating location. The airfield flooded with even small amounts of rain, and pilots had to weave through the 1.5-foot vertical depressions while taxiing.

The 819th/219th ERHS jumped into action and mobilized by moving 317 short tons of tools and equipment to the location by air and sea. The ADVON team arrived in September 2002 and began dewatering, establishing command and control, and preparing for the remainder of the team. By the end of the month the team was 160 personnel strong, with crews working in shifts seven days per week, 24 hours per day.

Water, Water Everywhere ...

Successful construction hinged on dewatering the airfield, and the ADVON team hit the ground running. Drainage ditches were dug, and in one month more than 3 million gallons of water had been removed. Keeping water away from the new runway and taxiway sections involved placing gravity drains in a rock drainage layer constructed within them. About 150,000 tons of earthen material was removed from the infields for positive drainage away from the airfield surface, and seven area inlets were installed along with a collection vault with adjoining pump vault.

Conventional open trench construction is costly and time consuming when installing utilities. The 819th/219th ERHS turned toward the future and trenchless technology. A horizontal boring machine was used to tunnel beneath the airfield pavement and install steel casing for the new HDPE (high density polyethylene) drainage line. The specialized training required paid off, saving 1,500 man-hours during the project and establishing the 819th/219th ERHS as the first military construction unit in Department of Defense history to complete a horizontal bore.

A Stakeless Job Site — the Future is Now

A comprehensive survey was required of the entire airfield — covering 12 million square feet. Months earlier, engineering personnel studied the use of Global Positioning System technology to do the survey. A conventional survey would take weeks to collect, record and analyze the large amounts of information needed. With handheld GPS surveying instruments, 2,500 data points were collected in approximately two days by only two people. Raw data was brought to life by linking 10,000 design points to the existing site.

"You can go anywhere on the site and find out cut and fill instantly ... it's great," said TSgt John Martin, surveying

NCOIC. "We were essentially able to run five jobs concurrently with only two surveyors."

Before deploying, the 819th/219th ERHS purchased a motor grader with an integrated GPS guidance system. Anywhere the operator drove on the airfield, the grader blade would match the design required at that location. GPS was used for every aspect of the project, saving 6,000 hours in surveying and construction. The 819th/219th ERHS is the first military construction unit to rely completely on GPS for all surveying and construction, making the job completely stakeless, and the first Air Force unit to use GPS with earth-moving equipment.



TSgt John Martin uses GPS to survey. Points are transferred to the GPS-integrated grader for construction. (DOD photo)

Rejuvenating the Runway

Airfield rehabilitation began with cold milling the full-depth repair area and continued by removing two inches of asphalt from the remainder of the asphalt surface. The 819th/219th ERHS had very little milling experience prior to this project, and each pass of the milling machine required tremendous accuracy to retain the existing properties of the pavement. To beat the learning curve, the whole team took a one-week milling course and arranged for a technical representative to spend three days on site to educate the crew.

During training, team members became experts at using the sonic sensors on the machine to automatically adjust the cutting head to the programmed depth. The technology and training paid off for the team, which completed milling the 1.3 million-square-feet of asphalt pavement in just 30 days. All the milling created asphalt material that was used to construct the shoulders, and the milling machine paid for itself in one project.

Milling created a great surface for the new overlay to lock into the pavement structure. With the surface now prepared, the paving team fired up the screed. Meeting tolerance on airfield pavement with a one-eighth inch vertical change in 12 feet is

very challenging. The truck drivers, screed operators, paver operator, and roller operators all play a vital part. Members of the squadron fashioned an asphalt cutting wheel and attached it to the finish roller, which was a quick way to cut longitudinal joints while achieving correct density. To bridge the gap between hard work and experience we arranged for the top three airfield pavement engineers from the Army Corps of Engineers to take us from proficient to perfection.

"At first I was nervous with the inexperience of the crew," said MSgt Darrin Small, "but this is the best (asphalt) mat and paving crew I have ever seen!" The paving team placed almost 22,000 tons in a one-month period alone. Testing revealed the team consistently achieved both surface tolerance and target density exceeding COE airfield standards.

The remainder of the airfield is made up of Portland Cement Concrete. Four different types of some of the worst sealants filled the concrete joints on the airfield. The team fashioned several different types of equipment attachments to remove the different sealants they encountered. They faced equipment shortages, but once outfitted with saws,

joint plows, backer rod and sealant, there was no stopping them.

"It's kind of amazing; it seems like too much work, and then when you finish you realize how fast the time went," said SSgt Ronal Reed Jr. The team was able to remove and replace 22 miles of joint sealant in just 10 weeks.

Rolling, Rolling, Rolling ...

The thrust of the project centered around the 2,000-foot runway and 1,775-foot taxiway full-depth repair sections. We employed GPS in each stage of the excavation, lift thickness and slope of the full-depth repairs. The material was placed with end dump trucks and leveled out with graders to reduce segregation. The GPS-controlled grader then cut the current lift to the correct thickness, and then the rollers went to work. An entire lift, including compaction, would only take two to three days from start to finish.

The use of GPS surveying and construction equipment took two weeks off the full-depth schedule alone. Progress was slowed at times, however, by a lack of quality construction materials. Our base course went through about 11 different iterations in four months before finally getting the product to consistently meet the

gradation requirements. This made meeting our construction schedule and compaction requirements difficult. The full-depth team had to place a six-inch lift to end up with three inches of compacted material after all the oversized segregated material was hauled away.

We developed in-house construction material analysis testing capability specifically for this reason. Our team received training on the multitude of testing equipment and one-on-one on-site interaction with COE experts. This gave our testing lab personnel the training and confidence required for the accuracy of testing necessary. The team completed more than 1,700 tests on soil, concrete and asphalt during the project. By the time the project was completed, the team had developed the first complete mobile material analysis laboratory in the Air Force.

Then There Was Light

The airfield was still not complete until new lights were installed and commissioned. The new lighting system included 706 lights and 48 illuminated guidance signs. The biggest challenge for the team was overcoming lack of experience.

At the Tip of the Spear

RED HORSE performs runway repair under cover of darkness

Lt Col Michael P. Skomrock
200th RHS

Work in the Afghan environment can be challenging but also very rewarding, as members of the 200th/201st RED HORSE Squadron from Camp Perry Air National Guard Station, OH, and Fort Indiantown Gap, PA, found when they deployed there last year for a major undertaking. Their task was to completely rebuild the Air Force Village as well as the runway at Bagram Air Base. By the time the runway project was finished, more than 600 concrete slabs had been replaced, and the Expeditionary RED HORSE team had successfully performed airfield damage repair at night.

Great Expectations

The original runway was constructed by the Soviets as a fighter platform, forming concrete slabs with wood between the slabs. The wood was left after placement to serve as expansion joints. Our original runway tasking was to replace approximately 70 failing 13 by 11-foot concrete slabs. We arrived with a DPRS (deployable pavement repair system) and the expectation of completing the project in approximately 45 days.

While our advon team was at the base, the Air Force Civil Engineer Support Agency's pavement evaluation team arrived



SSgt Scott McHugh, a heavy equipment operator, shovels concrete out of a chute during nighttime taxiway slab repair. (Photo by SSgt Bobby Yettman)

and increased the number of repairs needed to 504 slabs. As we progressed we identified additional slabs, bringing the final number to 628. We quickly geared up and expanded both manpower and schedule.

"The learning curve was steep," said 1Lt Bryan Cooper, "but the team was quickly working in concert with the other career fields, and we were able to install 260 lights in just one month!"

The placement of each light required meticulous detail. Each runway light is set directly across from its counterpart, and all lights are positioned at the correct elevation and alignment. To quickly and accurately set the lights in concrete, top wind trailer jacks and angle iron were used to develop a lighting can jig. More than 150,000 feet of trenches, conduit, counter poise for lightning protection, and wire were dug, placed and pulled.

The lighting design required airfield utility cuts that are costly in time and materials. We purchased a directional drill to cut costs and sent a team to attend school to learn the process. The machine has a rotating cutter head that spins, and the cuttings flow back to the beginning of the drill in a drilling mud. The directional drill cuts an opening wide enough to fit the required number of conduits, and they are pulled through to manholes that are set on either end.

"Some drills you could do in a heartbeat, but others were a real challenge," said SSgt Casey Kuhn, lead

directional driller. "Overall, drilling saved us lots of time." The team perfected the process and saved 4,000 man-hours during the project in airfield trenching and repairs.

CAN DO, WILL DO, HAVE DONE

No matter how much technology was incorporated into the project, people are what made the job happen. Without the support of vehicle maintainers, Supply and Services, the crews on the airfield would not have been able to accomplish the project four weeks early and \$500,000 under budget.

"Our young craftsmen were challenged with the impossible," said CMSgt Steven Kembel, project NCOIC, "and they overcame with outstanding results!"

All said and done, the team pumped enough water to fill eight Olympic-sized swimming pools, hauled the equivalent weight of 1,665 fully loaded C-17s, paved



A1C Nathan Laidlaw operates a horizontal boring machine. The machine bores large holes for utility crossings under the airfield surface, eliminating trenching. (Photo by SSgt Tony R. Tolley)

an area the size of 60 football fields, and placed enough electrical cable, counter poise and conduit to stretch up and down Mount Everest six times. In 170 days, the 819th/219th ERHS made its mark at this forward location and contributed to the capability of the United States Air Force. To the HORSE!

Capt Ryan Novotny is a project engineer with the 819th RHS, Malmstrom AFB, MT.

One priority was to start procurement of a concrete batch plant, given that we would be placing over 2,500 cubic yards of concrete. We started procurement in June, but the batch plant didn't arrive until Sept 7. Time constraints necessitated use of the DPRS until the batch plant was operational.

During the first three months of the project, more than 1,800 cubic yards of concrete were produced using the DPRS, with more than 1,000 cubic yards produced in one month. Those who have used a DPRS will understand what a major undertaking that was.

The DPRS is a mobile concrete machine designed for airfield damage repair. It is designed to produce limited quantities of concrete quickly. However, on this project we used it continuously for the first three months, doing almost half of all the repairs with it.

The DPRS is sensitive to many variables, such as the size of stone or quality of sand. The vehicle mechanics did an incredible job of keeping it running, and the operators are to be commended for producing more in one month than, to my knowledge, anyone else ever has with a DPRS. Stone quality was very poor, and repairs made necessary by the use of large-size stone were continuous. The team was performing 60-70 repairs per week by the time the batch plant became operational.

Using the batch plant, we were able to place as many as 38 slabs in a single day. But we held out the last slab repair for the DPRS. Since the last slab was on a taxiway, and the base was in

blackout conditions, we saw an opportunity for training and decided to do the repair at night using night vision goggles, or NVG. It was a real experience, and we learned a number of lessons that may prove useful for future use of NVG in performing airfield damage repair.

Lessons Learned

Lesson one is to spend a lot of time using the NVGs prior to doing a full repair. After first putting them on, it seems as if you can see everything and there will be no problem. It's only after you start working in them that you realize how severe the loss of depth perception is. Also, with no color vision the runway looks a lot like the edges. That may not be a big problem on a normal runway, but on a runway surrounded by landmines like Bagram, it could become a big problem quickly.

The viewpoint through NVGs is very different. I personally learned that the hard way when I managed to find the only 15-foot section, out of more than 20,000 feet of runway and taxiway edge, that had a 12-inch drop in a spot where we had removed the forms from a previous pour. Not that I heard anything from the troops about getting my SUV stuck on the side of an active taxiway — right.

Did we cheat some? Yes. We pulled out flashlights on occasion to check some things. Do I think that it could be done without cheating? Yes, but only with a lot more experience with the NVGs. We had done quite a bit of preparation prior to the pour and placed



Eielson “Icemen” Battle Blazes in Afghanistan

Firefighters from Eielson Air Force Base, AK, battled blazes and dodged bullets and mortar fire during their deployment to Afghanistan for Operation ENDURING FREEDOM. However, the challenges for the 354th Civil Engineer Squadron “Icemen” skyrocketed when the firefighters discovered they had to fight massive building fires with little equipment.

“We have plenty of equipment at Eielson, but when we deployed to Bagram Air Base, Afghanistan, last year, equipment was scarce. We had to find new ways to accomplish the mission,” said TSgt Pat Miller, the deployed assistant chief.

There aren’t any local firefighters near Bagram, which meant Eielson firefighters were one of the city’s primary sources for emergency response.

“It was a ‘good will mission’ to help the locals,” said Sergeant Miller. “We were called to an off-base location, an eight-plex strip mall, which had its four center units engulfed in flames. We established there were no life safety issues, so we focused on saving the

Airman Eric Smith, 354th CES Fire Department, shakes hands with local children at an orphanage in Charikar, Afghanistan while delivering humanitarian aid. (U.S. Army photo by Sgt Sean A. Terry)

At the Tip of the Spear *Continued*

equipment and supplies on the inactive taxiway prior to the actual repair.

Everyone at a blackout base should use NVGs for a while to learn how much effect extraneous light has on the vision of the wearer. For example, when following lead vehicles, you are blinded when they put on the brakes. Even the dash lights emit enough stray light to limit the ability to see well while driving. We found it helpful to disconnect brake lights or tape over all but a very small area, cover dash lights with tape and take the time to fully clean windows before starting.

Using plenty of radios helps compensate for some of the loss of sight. The use of spotters becomes even more critical than in normal environments and allows better and safer use of loaders, as well as other equipment. After placing 600 slabs of concrete on this project, we were pretty accurate at estimating quantities needed very closely, but the lack of depth perception had enough of an effect that

we were a little short when finished (nothing a little rapid-set runway repair material couldn’t fix).

Finishing the concrete with NVGs was also difficult due to the lack of depth perception, and I would not expect the finished product to be as good as one finished during the day.

Close Calls

Throughout the airfield repair project we had the opportunity to work with a 19-man Prime BEEF team, which integrated fully with our troops and performed admirably, and with multiple coalition forces engineers. The opportunity to work with a highly diverse coalition force was both enjoyable and challenging, especially with the language barrier when trying to communicate with the tower.

The runway remained active during our entire project. Flying was restricted for seven hours a day, but even during restricted hours we still had to pull off

constantly for flights. That’s one reason for the large increase in the number of slabs we could place using the batch plant. We could pull the transit trucks off and back on quickly, while the DPRS took 30 minutes to pull off and get started again.

With all the aircraft activity we had a number of close calls — greatly increasing the pucker factor on the job — especially in the beginning until the pilots became used to us working on the runway. We also had to redo some repairs due to the jet wash of aircraft turning near new concrete.

I am pleased to say that the project was completed without major incident, working in a busy environment under difficult conditions. We showed it could be done.

Lt Col Michael Skomrock was the detachment commander for the 200th Expeditionary RED HORSE Squadron on this deployment.

other four units, all privately owned. The owners didn't have insurance so whatever was lost would be gone forever," he said.

"We fought the blaze for roughly two and a half hours. We didn't have fire hydrants or a local water supply. Our vehicles were the only water supply," he added. "One shop caught on fire and six, 55-gallon gasoline drums blew up. The fuel rained down all over everyone, and the mud walls of the buildings began collapsing. Fortunately, we had all backed up to a safe distance."

Although team members were helping the Afghans, sometimes their presence caused more problems than the fires they were fighting.

"There were always local residents and the media, like CNN, trying to get as close to the fires as possible. They were constantly in the way, trying to get a better view or film everything that was going on. However, after the explosions, we had no problems keeping everyone at a safe distance," said Sergeant Miller.

Crowd control played an important part in allowing the firefighters to do their job. "Security forces members earned a new level of respect from the firefighters," he said. "Many soldiers and locals walked around with AK-47 assault rifles and rocket-propelled grenade launchers — you never knew if a riot was going to break out. Security forces came out to all of the incidents and showed superior crowd control compared to the other responding forces."

It was a memorable first deployment for AIC Rick Mallow, a journeyman firefighter. "It was a great experience," he said. "We helped out a lot. Even so, it got pretty strenuous at times.

There were land mines going off everywhere. At night, we would watch the tracer fire and mortar explosions in the mountains surrounding the base."

"We received a call one night reporting a group from the international de-miners organization had gone out to a house to defuse a mine and it had detonated," said Sergeant Miller. "One person had been seriously injured. We responded to extinguish the house fire. An ambulance arrived to transport the injured man. As the ambulance drove away, it hit a tank mine and was blown to pieces. Four responders were killed and 16 were injured. We couldn't do anything but stand back for fear of secondary explosions."

Despite the difficult situations, the deployed Eielson firefighters did an outstanding job, said Eielson fire chief Jim Didier.

"These firefighters did the job they were trained to do in a difficult situation, and did it extremely well," he said. "Not only did they do the job, but they improved conditions for those firefighters who deployed next. It should make every person in the 354th Fighter Wing proud to serve with them."

Sergeant Miller is also proud of the firefighters he worked with during the deployment. "Everyone worked very hard in Afghanistan to do their part to accomplish the mission. We did our best with what tools and equipment we had available and came out on top. We didn't lose anyone in a fire or to senseless mistakes. We are well-trained and ready to face whatever comes our way." (*AIC Jasmine Campa 354th Fighter Wing Public Affairs*)

A Stealth Beddown

Team erects B-2 shelters at deployed location

Twenty members of the 49th Materiel Maintenance Squadron from Holloman Air Force Base, NM, spent more than 70 days at a deployed location late last year erecting portable shelters for B-2 Spirit bombers.

The Air Force now has two transportable B-2 Shelter Systems that allow the Stealth bombers to deploy overseas. Deploying the B-2s to forward locations significantly shortens combat missions, which have been as long as 44 hours from Whiteman AFB, MO, according to Lt Col Myron Majors, 49th MMS commander.

"This was the first time these shelters were constructed for operational use," he said. "We hand-picked a team with a core of troops who had experience in B2SS construction during the test and evaluation phase. Their experience, along with a lot of ingenuity and hard work, paid off as they finished the two shelters about three weeks ahead of the original schedule despite a number of modifications required in the field."

Each B2SS stretches almost a football field wide with an interior volume of 1.1 million cubic feet, providing the environment needed to maintain the stealth characteristics of the B-2 at a forward location. The Combat Support System Program Office at Eglin AFB, FL, manages the B2SS program, in



Members of the 49th MMS erected two portable shelters for B-2s at a deployed location. (Photos courtesy 49th MMS)

cooperation with the B-2 System Program Office at Tinker AFB, OK, and the Directorate of Requirements at Headquarters Air Combat Command, Langley AFB, VA. Each total shelter package costs about \$2.5 million and can be transported in 29 C-130 Hercules.

The soft-walled shelters, built by American Spaceframe Fabricators, Inc. of Crystal River, FL, can withstand extreme temperatures, snow and winds. They can also be equipped with a pressured liner to protect troops from biological and chemical

attacks. One of the greatest challenges was designing the shelter's 10-ton clamshell retractable door, which rolls back like a huge eyelid. The shelters also feature state-of-the-art heating, ventilation and air conditioning and control systems.

Capt Brent Gibson headed the multi-disciplinary 49th MMS team that erected the hangars. "The B2SS is very large," he said. "You could fit about five ACH portable aircraft hangars inside of it. The sheer size of the hangar, especially when you have workers up on top of it, gets your attention. Working 60 feet in the air also gets your attention."

"The trusses are huge metal structures that span from one side to the other," Captain Gibson explained. "We used two erection towers forming kind of a tripod, with one person controlling both winches, to pull the first truss into place. It was then anchored down with cables. Once the first one was in place, each successive truss was attached to the previous one. Watching 25,000 pounds of metal rising from the ground is impressive."

Much of the finish work had to be done by hand. "The covering is composed of huge sheets of fabric that have eyelets that we run rope through," said Gibson, "which means that we have people working on top of the structure, strapped in with harnesses and safety lines. The B2SS is an animal, but it's pretty neat when it comes together."

Other members of the 49th MMS deployed team were impressed with the experience as well. "It was a good learning experience," said SrA Fred Long. "I never knew that much about buildings until this deployment."

"It's rewarding to see the completed structure," added TSgt Lawrence Corron. "It makes all the hard work worthwhile."

Additional military, civilian and contract representatives from HQ ACC, the B-2 SPO, the Air Armament Center and the Air Force Civil Engineer Support Agency supported the combined effort.

"The entire team worked extremely well together," said Captain Gibson. "CMSgt Billy Doolittle from ACC selected a team of highly trained experts and pulled off the impossible. The talent was there, but this team's drive generated its momentum. Each member demonstrated sound leadership, determination, and a commitment to accomplish what had never been done before, and that made all the difference." (*Compiled from interviews by Lois Walker, HQ AFCEA Historian, and an Air Combat Command News Service report.*)



Dual construction towers (visible in front of first truss) were used to erect the B2SS. Both hangars were erected simultaneously.

Help arrives from CEMIRT, AFCAP

Erecting the B-2 shelters, like most complex projects, relied on teamwork. Members of CEMIRT, the Civil Engineer Maintenance, Inspection, and Repair Team out of the Air Force Civil Engineer Support Agency, helped the 49th Materiel Maintenance Squadron configure and install the electrical system for the hangars, while AFCAP, the Air Force Contract Augmentation Program, provided specialized equipment.

Plans originally called for deploying Harvest Falcon generator sets to provide

electrical power for the hangars. That would have required setting up a prime power plant, a fuel bladder and piping, and deploying power production specialists to run a 24/7 operation and maintain the generators. CEMIRT members did some homework and determined that there was an ample supply of reliable commercial power at the site. In consultation with members of the base engineer staff and the 49th MMS, CEMIRT's Frank Burrier and SSgt Travis Poling designed a connection scheme to hook the hangars to

the existing local power grid.

TSgt Mike Alvarez and SSgt Christopher Burgess, also from CEMIRT, deployed in late October after hangar construction was well underway and the structures were ready to receive power. Working with the 49th MMS electrical team of MSgt Howard Nicewander, SSgt Corey Denny, and SSgt Bob Piispanen, they installed a high-voltage stepdown transformer, high-voltage switches, a primary switch center and cabling according to the design plan. The local base

operating support contractor installed an underground feed to the site.

"Planning for the project took a great deal of time, because at first nobody knew what we were going to do, how we were going to do it, or what we would have to work with," said TSgt Mike Alvarez, CEMIRT team leader. "But once we determined that the local power source was adequate and stable, we were able to come up with a good plan."

"The actual wiring portion of the project was relatively easy, and we were

RED HORSE Takes to the Sky

First airborne team stands up in Southwest Asia

by Capt Kevin Osborne
819th RHS

Amid chopping sounds of the CH-47 Chinook, the equipment sling-loaded to the helicopter's undercarriage is slowly lowered to the runway below. The slings are cut loose as individuals quickly exit the helicopter. The sun is slowly setting on the horizon, and as the colors dance in the evening haze a glance down the runway reveals two large craters in the center of the strip. The Airborne RED HORSE team quickly moves in for repairs. Their mission: open the runway for follow-on forces.

RED HORSE is blazing trails again — this time, from the air. The Airborne RED HORSE concept was developed to meet the vision of the Chief of Staff of the Air Force that combatant commanders have an airborne airfield assessment and repair capability. The purpose of ARH units is to “assess, prepare and establish” contingency air bases in remote locations through air-drop, air-insertion or air-delivery.

In the Fall of 2001, the 819th RED HORSE Squadron, Malmstrom Air Force Base, MT, took the lead on this new initiative. MSgt Mike DeShon began learning all about U.S. Army airfield damage repair operations with the 82nd Airborne Division, Fort Bragg, NC, and 101st Airborne Division (Air Assault), Fort Campbell, KY.

“There was a lot of preliminary research that needed to be accomplished,” said Sergeant DeShon. “We wanted to make sure we talked with the right people, listened to their concerns, and then drafted our own concept of operations based on our findings.”

Instant communication lines were established between the 82nd Division's 618th Engineering Company and the 101st Division's 887th Engr. Co. These companies use a light airfield repair package for expedient crater repair on runways. Their unique task is to support the forcible entry and airfield seizure missions of their respective brigades. The 618th accomplishes this through airborne techniques, while the 887th uses air assault tactics.

Utilizing a new mobile airfield repair equipment set, or MARES, RED HORSE proceeded to combine both of these capabilities to accomplish the objective. In December, the 1st Expeditionary RED HORSE Group commander, Col Terry Crummett, contracted with Readiness Management Support, through the Air Force Contract Augmentation Program, to procure the first MARES and have it delivered to SWA.

With the 819th Expeditionary RED HORSE Squadron heavily tasked supporting more than \$27 million in construction



Members of the 819th Expeditionary RED HORSE assemble with the MARES, establishing the first-ever Airborne RED HORSE team in Southwest Asia in February. (Photo by MSgt Richard Cook)



The local base operating support contractor at the deployed location helped CEMIRT make the final connection into the host nation power supply

able to complete the project in nine days. The greatest push was to get power connected in time for the contractor, who had to test the hangar's huge air conditioning units and get

the phase rotation correct on all three units, to do his work. But working with the troops from the 49th was an awesome experience. They did an outstanding job.”

Hooking to commercial power not only freed up critical generator assets for use at other deployed locations, but also resulted in a cost avoidance of more than \$1.5 million.

AFCAP also played an important role in the B-2 shelter construction project. The AFCAP contractor, Readiness Management Support, was called on to acquire and expedite delivery of the construction equipment necessary to erect the hangars and the electrical systems required for CEMIRT and the 49th MMS to install power.

Within 10 days of notification to proceed, RMS gathered the necessary equipment, including such items as a 7.5-ton crane and a specially manufactured high-voltage stepdown transformer, delivered them to Dubai International Airport in the United Arab Emirates, and made arrangements for a Ukrainian IL-76 aircraft to fly the package to its final destination. The necessary equipment and supplies were on site in time to meet up with the B-2 shelter systems, which arrived by sea. (Lois Walker, HQ AFCEA Historian)

throughout the U.S. Central Command area of responsibility, the 1st ERHG called on Mr. Dave Wagner at the Air Force Civil Engineer Support Agency, Tyndall AFB, FL, to assist. Dave coordinated between the vendors in the United States and the 1st ERHG.

By February, the hard work paid off as the U.S. Air Force and RED HORSE community stood up the very first Airborne RED HORSE team in Southwest Asia, led by the 819th ERHS. Training began immediately for the team.

"We had an aggressive schedule to meet in order to become operation-capable," said Col Crummett, "but, with the teamwork from AFCAP, AFCESA and our LG community, we were able to meet the demand."

The 819th ERHS ended its six-month deployment in support of Operation ENDURING FREEDOM in March, and the first-ever ARH that had made history just two months earlier handed the reins to the next squadron to continue the mission, the 823rd RHS, just in time to support Operation IRAQI FREEDOM.

"The RED HORSE community is again at the leading edge in revolutionizing the way we accomplish airfield repairs," reflected TSgt Jeff Schneberger, 819th ARH crater team chief, "and I'm proud to be a charter member of this team."

To the HORSE ... AIRBORNE!

(Capt Kevin "Ozzie" Osborne, civil engineer project officer, 819th RED HORSE Squadron. Capt Osborne is the Airborne RED HORSE Project Officer.)

AFRL technology benefits airborne firefighters

Surface-to-air missiles suddenly appear against the night sky, screeching from the underbrush below. The UH-1 Huey initiates a hard right bank, but seconds too late as the projectiles slam into the tail rudder. A mayday call is heard on the radio as the helicopter plummets toward earth. Airborne firefighters from the 347th Civil Engineer Squadron at Moody Air Force Base quickly mobilize and arrive on the scene within minutes to witness a fiery blaze engulfing the Huey. Donning their gear, they swiftly reach for the hand line of the newly designed First Response Expeditionary Fire Vehicle, or FRE-Fire.

This was one of many firefighting scenarios held during the first Airborne RED HORSE field training exercise at Avon Park military range in Florida last fall in which FRE-Fire began its technological transition from laboratory testing to real world application.

Developed by the Air Force Research Laboratory Fire Research Group at Tyndall AFB, FL, FRE-Fire combines the Rosenbauer company's ultra high pressure water spray system with a platform designed for the John Deere Military Gator. It is designed to carry both 50 gallons of water and 5 gallons of foam and, using a specially crafted nozzle designed by AFRL,

can deliver a steady stream of water at 1500 psi. It is lightweight and is being designed for airdrop and helicopter sling loading for insertion into austere airfields, giving airborne firefighting teams the ability to provide crash rescue and limited firefighting capability.

"Compact size and high power performance make this vehicle ideal for providing Day One deployment fire protection, bridging the gap between flight line fire extinguishers and crash/rescue fire trucks," said Jennifer Kalberer, project officer at AFRL Fire Research.

AFRL took the initiative in September 2002, working on a design for a small, mobile fire fighting vehicle that could fight 2-D and 3-D hydrocarbon fuel fires. Within one month, the project evolved from the drafting board to the first successful prototype testing, which included modifications recommended by USAF firefighters.

After the first test of the FRE-Fire last fall, CMSgt Tim Seigal, Headquarters Air Combat Command fire protection manager, commented that "fighting fires using JP-8 probably gave the Moody AFB team some of the most realistic training they will ever experience."

"It is imperative that firefighters have the capability to deploy with a light, compact, quick-response fire fighting vehicle," said MSgt Steven Lowell, supervisor of the fire fighting exercises at Avon Park. "The FRE-Fire fits the bill. It is quickly deployable, requires minimal space on the aircraft and will provide airborne firefighters with an excellent first-in limited fire fighting capability."

(Jennifer Kiel, AFRL Fire Research Group)



FRE-Fire vehicle in action during exercises at Avon Park Air Force Range. The FRE-Fire vehicle is designed for use at forward operating locations and for tent city protection. It recently deployed for use in Operation IRAQI FREEDOM. (Photo courtesy AFRL)

From the new Mission Support Group structure to strategic partnering to an aging civilian workforce and A-76 programs, there are significant changes happening now and on the horizon for Air Force civil engineering. In this interview with *Air Force Civil Engineer* magazine, Ms. Kathleen I. Ferguson, Deputy Air Force Civil Engineer, discusses the issues she's working on behalf of civil engineers worldwide and her philosophy on how to succeed in these ...

Changing Times

AFCE: Before taking your current position as The Deputy Air Force Civil Engineer, you worked as Chief, Combat Support Division for the Directorate of Supply, Deputy Chief of Staff for Installations and Logistics. You also served as chief of the Installations Support Panel twice, from 1995-1997 and 1999-2001. Has serving in other capacities within IL, outside the typical civil engineer spectrum, brought new perspective to your current work?

Ms. Ferguson: It was a great opportunity for me to work in the Directorate of Supply, and it was very different from anything I had ever done. I had spent the rest of my career in various civil engineering capacities. During my time in Air Force Supply I managed the appropriations 3080, other procurement and 3011, procurement of ammunition accounts for the Air Force. We managed the funding from cradle to grave — the planning, the programming, the budgeting and throughout execution of the dollars. Interestingly, I worked a lot of CE issues during that time. For instance, we bought all the vehicles for civil engineering, including construction equipment and RED HORSE vehicles. We bought all the war reserve materiel for the Air Force, as well as expeditionary airfield lighting systems, mobile aircraft arresting systems, and all the Harvest Bare equipment for deployed locations.

AFCE: What are some of the issues you plan to work in the coming year?

Ms. Ferguson: My primary responsibility is to assist The Air Force Civil Engineer, Maj Gen Robbins, in execution of the mission of Air Force Civil Engineering. Therefore, I am involved in a myriad of issues facing CE today — from supporting the wartime mission to being good stewards of the environment to executing our military construction and housing programs. Because of the wide variety of issues we work on a day-to-day basis I will focus on just a few. As you would expect, we are very involved in supporting the Global War on Terrorism, Operation NOBLE EAGLE, Operation ENDURING FREEDOM and now Operation IRAQI FREEDOM. Some of the key challenges we are facing are engineering deployment issues, relieving our stressed career fields, and demobilizing the Air Reserve Component.

The Air Force has 104,000 family housing units, and 40,000 of those do not meet modern standards and require either major renovation or replacement. One of the tools in our toolbox is the use of authorities allowing us to privatize where it is economically feasible. The Air Force currently has 38 projects programmed that will result in 40,000 privatized units. We have five projects awarded today, and are working very hard to award another eight projects in the next 12 months.



Ms. Kathleen I. Ferguson

We are continuing our efforts to provide improved automation tools to our personnel. I chair the Automation Steering Group. Its mission is to improve business processes through transitioning our current automation tools into a single logical database supporting the full range of operational and contingency responsibilities. ACES, the Automated Civil Engineer System, will provide the automated tools our installations and major commands need to do their job. It has a multitude of functionalities — operations, environmental, real property, housing and project management — those things our personnel need to do their jobs

more effectively and efficiently. Additionally, we need to be forward thinking. We're looking at how we're executing near-term and developing a strategic plan for where we want to be five years and 10 years down the road.

I also participate in the Engineering Senior Executive Panel. The ESEP is the SES-level group that provides overall direction to the Unified Facilities Criteria program and addresses any other engineering matters of common interest to DoD and the services.

AFCE: What other programs are absorbing your time?

Ms. Ferguson: I spend a good deal of my time on personnel issues as Chair of the Civil Engineer Career Program Policy Council. The policy council, which includes representatives from all major commands as well as all career fields in the Civil Engineer Career Program, is working many issues today on behalf of our civilians. For instance, executive assessment process, education and training opportunities, accession planning, Palace Acquire interns and force renewal of our workforce.

I also participate on a senior executive panel with my counterparts in the Army, Navy and Marine Corps in the development and assimilation of engineers into the Facilities Engineer Career Field under DAWIA (Defense Acquisition Workforce Improvement Act) (Nov 90). Both military and civilian positions that are considered acquisition are eligible for assimilation. The actual number of covered positions will not be known until all the positions are coded by the major commands. There are five sub-areas within FE that include planning, engineering & construction, base operations & support (facility management), real estate and environmental. We currently have an Integrated Process Team with participants from all major commands participating in developing the assimilation plan for Air Force personnel into this new career field under DAWIA.

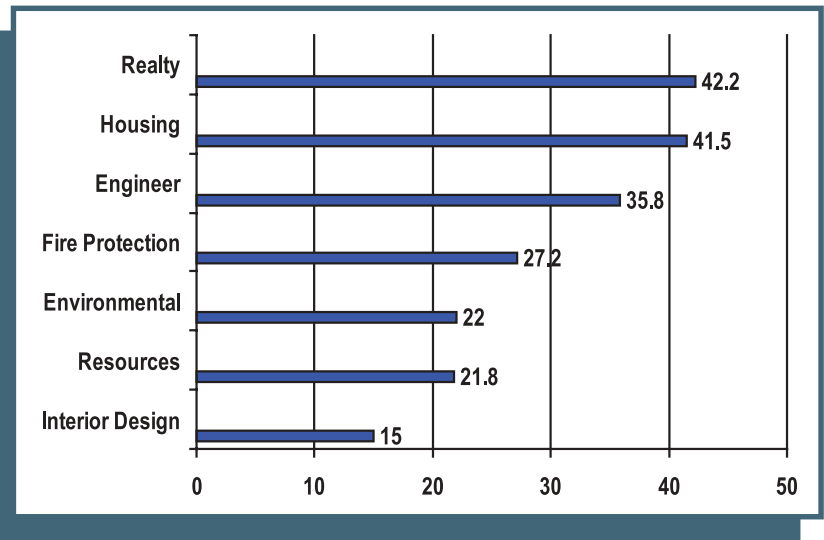
AFCE: There have been news reports that the Air Force's civilian work force is "out of balance," with fewer young employees than needed to replace those coming eligible for retirement. Do you think the career field is on the right track to satisfy current and future Air Force mission needs?

Ms. Ferguson: One of the biggest challenges we face is the aging work force and the number of people who are eligible to retire over the next five years. In housing, for instance, 41.5 percent of our folks are eligible to retire in the next five years. That's pretty typical of most of our career fields covered by the CECF.

One of the goals of the CECF Policy Council is to make sure we have people coming up through the ranks, trained, with the right experience and in the right grade structure, so that we have people to backfill all the GS-12, -13, -14 and -15 positions that will become vacant over the next few years. We are working this issue very hard through mentoring, training and accession planning.

The Policy Council is also evaluating the health of each of the individual career fields. We're starting with the housing career field because it's pretty small, with only 202 people, and also because there have been many changes in the housing business over the last few years. We've outsourced a lot of the housing management offices, and we're privatizing nearly 40,000 family housing units at 38 installations. The Policy Council has charged Katie Halvorson, chief, AF Housing Operations Branch, and Brenda Robinson, HQ Air Combat Command Programs Division, to evaluate the housing career field to ensure the promotion paths and create a prototype program to fix any problems with the career field. Once that's done, we'll extrapolate it to other career fields.

Percentage of employees in CECF eligible to retire in less than five years



Another issue that we need to look at is accession planning, which ties into how we're going to fill those positions. That's moving folks from one place to another and making sure they have the right training, the right skills and the right things in their personal portfolios to make them competitive. In a broad sense, the Policy Council will be looking at some tools to help with that.

AFCE: What are some of the things that we can do in the field to help with recruitment and retention of civilians?

Ms. Ferguson: Some individual organizations are

doing a good job of recruiting and then growing their junior personnel, and we can take lessons learned from them to apply across the Air Force. At the November 2002 Policy Council meeting we brought in three deputy base civil engineers to share their experiences. At Grand Forks AFB, the deputy BCE, Mary Giltner, uses many tools at this hard-to-fill location. She uses recruitment and retention bonuses, recruits heavily at local universities and utilizes student hires and Palace Acquire interns.

Glenn Meyer at Ellsworth AFB, SD, had many suggestions that the CECF Policy Council is evaluating as ways to improve recruiting/retention. For example, how do we entice interns to move to a northern tier location, what other avenues of training do we have available for the AFIT technical courses that have been eliminated over the years, and how do we attract candidates to fill critical positions vacated when personnel accept assignments in overseas locations?

Finally, Mike Clark at Eglin AFB, FL, had some different challenges than the northern tier bases are facing. One is how to reduce the amount of time it takes for positions to clear through the staffing process, a problem at many locations, and then clear the large stopper lists at Eglin — a very different scenario from some of our other locations but a very real problem for Eglin.

In summary, each of our installations has challenges, but our civil engineers have found innovative ways to recruit and hire talented employees. Many of us signed on under the Civil Service Retirement System. Under today's Federal Employee Retirement System people are very portable, and they tend to move between jobs a lot more. They're not going to hire on with IBM or AT&T — or the government — and plan to stay for 30 years. We need to find ways to convince people to come work for the federal government and then provide them with exciting jobs so they will stay for many years.

AFCE: What kinds of training opportunities are available to civilian employees?

Ms. Ferguson: There are many opportunities available for both long-term and short-term training. We have several folks that were selected through the Civilian Career Development Program and are attending long-term, full-time training now. In the current academic year, we have three people at Air Command and Staff College, two in senior service school, a two-year Legislative Fellow on Capitol Hill, and two people serving overseas in career broadening positions. I would encourage everyone to talk to their supervisor or mentor to evaluate whether a CCDP opportunity is right for them. We also offer many short-term training opportunities through the Civil Engineer Career Program. Personnel should watch the CECF web site for information and opportunities.

AFCE: How do you feel about mentoring?

Ms. Ferguson: Mentoring is essential for everyone, no matter what their grade or whether they are civilian or military, to help them achieve his or her full potential. Whether formal or informal, it is crucial to the development of our personnel. Everyone needs a mentor — someone they can go to for advice, feedback and career guidance. Mentoring is everyone's responsibility. I've challenged all of the Policy Council members to become active mentors — both inside and outside their organization. Take the time to sit down with people and evaluate their career briefs and their education, and look to see what they need to get that next job, and the job after that, based on where they want to go in their careers.

AFCE: Change is always difficult. What kind of advice do you have for the civilian engineers, in terms of how to ride out this perpetual white water that we're in, to encourage them to develop the right mindset and get through it?

Ms. Ferguson: I recently spoke to the Professional Housing Managers Association. The keynote speaker spoke about the old adage, "May you live in interesting times." He had a healthy perspective on that. He said you can think of it as either a Chinese curse or an Irish blessing. It's all in how you interpret it.

My advice to the civilian engineers in these changing times is to be flexible. I think their best chance to move forward, whether it's to a lateral job or a promotion, is to get broad experience. Our people should not be afraid to try new things, to go from programming to environmental to construction, for instance, and to work in different places. If you start out at base level, do a tour at a major command or at the Air Force Center for Environmental Excellence or the Air Force Civil Engineer Support Agency to help round out your background.

In the next five years, the number of opportunities for our people is going to be almost overwhelming. We almost have more opportunities than we have people at this stage. So, the future is bright for those who are flexible, who are willing to work hard, who understand the AF and CE business and are willing to move and take on new challenges.

There will be tremendous opportunities in the coming years for our people to help mold the future of Air Force Civil Engineering, to help define policy and determine our own future. If your base is going through one of these dynamic changes, view it as an Irish blessing and get involved in helping to frame what the final outcome will be, rather than sitting on the sidelines. We've got to be involved to help draft the roadmap for the future. Our younger folks are so smart, technologically, and they're very willing to think outside the box. There are tremendous opportunities for folks who want to be a part of the action. I encourage everyone to seize them.

The Road to Revitalizing Air Force Utility System Infrastructure

by Brian P. Stahl, PE; Richard C. Woodworth
and Robert D. Patterson, HQ AFCEA

"Historically, military installations have been unable to upgrade and maintain reliable utility systems due to inadequate funding and competing installation management priorities. Utilities privatization is the preferred method for improving utility systems and services by allowing military installations to benefit from private sector financing and efficiencies."

—Honorable Paul D. Wolfowitz, Deputy Secretary of Defense, October 2002

The Air Force has adopted a revised, two-pronged approach to revitalizing the utility systems on its bases. This approach incorporates the current utilities privatization, or UP, program and ties the results of that process to a new Utility System Master Plan concept. The Master Plan will ensure a more comprehensive analysis, planning and programming process is available to upgrade all utility systems to acceptable functioning levels to meet base mission requirements.

The fact that the Air Force and its sister services have experienced a decline of investment in mission-critical installation infrastructure over a period of many years was underscored in the most recent Installation Readiness Report, in which eight Air Force MAJCOMS assigned utilities and grounds a C-3 or C-4 rating. A C-3 or C-4 rating means the facilities have serious problems or do not support the mission. The 2003 backlog of work needed to reduce those ratings to a C-2 (minimally acceptable performance) or C-1 (full readiness performance) has ballooned to an astounding \$1.38 billion for utilities and grounds alone.

To expedite improvement of utility systems, the Office of the Secretary of Defense directed the services to take advantage of private sector financing and efficiencies through privatization and asset sale of utility systems. Further, in 2001 OSD issued Defense Planning Guidance directing the services to revitalize all facilities and infrastructure to no less than a C-2 rating by 2010.

The Requirement

OSD originally issued Defense Reform Initiative Directive #9 in 1997, directing the services to divest themselves of all utility systems when economically viable by September 2000. Exemptions from this requirement were granted when privatization would result in a negative security or readiness impact to the installation. To facilitate the process, Congress passed 10 USC § 2688 authorizing the sale of DoD utility systems.

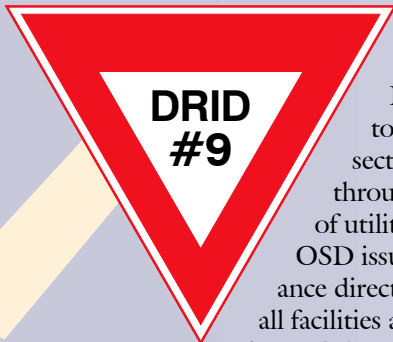
The Air Force launched its UP program in 1998 and began a methodical analysis of all Air Force-owned utility systems. In developing the program, the Air Force established two primary goals: divesting activities not considered "core" to the Air Force mission, and improving the condition of utility systems while providing long-term benefits and savings to the Air Force.

The deadline for completing the privatization process has been extended twice since the program began. In December 1998, OSD issued DRID #49, which extended the completion date to September 2003 and provided additional guidance for determining the economic feasibility of privatization projects. In October 2002, OSD issued further UP guidance that re-emphasized the importance of completing privatization analyses and also extended the deadline for finishing the UP process to September 2005.

The Pathfinders

Although the Air Force diligently pursued UP from the beginning of the OSD program, the process was complex and filled with potential pitfalls. To minimize the risks to Air Force resources, the UP Pathfinder program was created. Under this program, the Air Force selected 71 systems at 26 Active, Guard and Reserve bases and carried them through the entire UP process. This strategy was designed to gather lessons learned and incorporate them into future privatization efforts.

The privatization analyses for the remaining Air Force utility systems were placed on hold until the



Pathfinder process was complete. As a result of the Pathfinder program, more than 130 lessons learned were incorporated into the UP strategy. This resulted in significant changes to Request for Proposal templates, economic analysis models, and Air Force UP policy and guidance that greatly improves the UP process.

Restarting the Process

To meet the new OSD privatization deadline, the Air Force recently restarted the UP program for the 194 utility systems previously placed on hold. MAJCOM and base civil engineers have primary responsibility for execution of the UP program with programmatic and technical assistance from the Office of The Civil Engineer and the Air Force Civil Engineer Support Agency. At each base with potential privatization candidates, a UP Integrated Process Team will be established to execute the analysis. This IPT will be comprised of representatives from Civil Engineering, Finance, Contracting, Legal, Security Forces and other offices as required.

Integrated Process Team

To restart the process, the IPT will develop the specifics of the RFP, appoint a Source Selection Authority, develop acquisition and source selection plans, collect utility data, and assist in the development of a government estimate to determine the cost of retaining the utility systems. At most installations, a Request for Interest or Sources Sought will be issued for each system to determine the level of potential industry interest in privatization. If more than one company expresses interest, a competitive RFP will be issued. If only one company expresses interest, a streamlined sole source RFP will be issued. If no companies express interest, OSD requires the services to contact the local utility provider to determine if they are interested.

If proposals are received, the IPT will evaluate them to determine if they meet the technical requirements of the RFP and if they are less expensive than the government cost for retaining the system. Based on this evaluation, the SSA will decide whether to award the project or declare it uneconomical. If a decision is made to award the project, the utility system will be transferred to the successful offeror after a 21-day Congressional notification. If no technically and economically viable proposals are received for a particular system, the Air Force will notify OSD that the system is exempt from privatization.

A Master Plan

Although OSD prefers to use privatization for revitalizing utility systems, the Air Force has found this option is not always viable. In many cases industry is not interested in buying Air Force utility systems, and in others the proposals are technically and/or economically unacceptable. To meet the Defense Programming Guidance goal of bringing all facilities and infrastructure to at least a C-2 rating by 2010, the Air Force recognized the need for another tool in the utility revitalization toolbox. To this end, the Air Force is developing the Utility System Master Plan.

The Master Plan lays out an investment strategy that determines the specific funding and timing of funding needed to bring utility systems to a C-2 rating and maintain them at that level. To develop the plan, each base, assisted by an AFCESA Architect and Engineer firm, will develop a detailed condition assessment of their utility systems. They will also evaluate life cycle costs for the components of the system and estimate sustainment, restoration and modernization funding requirements.

When implemented, the Utility System Master Plan will be an invaluable tool for determining funding requirements for each system as well as proper maintenance schedules to sustain a minimal C-2 rating. This will give MAJCOMs, commanders and base civil engineers the ability to apply ever-diminishing resources to their utility systems in the most effective manner.



The End Result

Revitalization of Air Force utility systems is vital to maintaining our ability to support the Air Force mission. The Utilities Privatization Program is the first step in improving utility system infrastructure. Through privatization and implementation of the Utility System Master Plan, the Air Force plans to meet the Defense Programming Guidance goal by 2010 and ensure the Air Force continues to fulfill its global mission requirements.

Brian Stahl is the Utilities Revitalization Program manager, and Richard Woodworth and Robert Patterson are utilities privatization project managers, at HQ AFCESA, Tyndall AFB, FL.

Farewell Boss

Maj Gen Earnest O. Robbins II retires from the Air Force in May, culminating nearly four years as The Civil Engineer and 34 years of service to the Air Force and the nation. From his first assignment with the Aeronautical Systems Division in 1969, to his service as the Air Force Space Command Civil Engineer (1993-1996), the Air Combat Command Civil Engineer (1996-1999), and The Civil Engineer, he has challenged our perceptions, energized our programs, made

substantial improvements to our readiness posture, and strengthened the career field.

Farewell, Boss, and Godspeed!





Altus CEs Develop a

JOINT *Attitude*

by 1Lt James M. Eschrich
97th CES

Every once in a while you feel like you reach a point where you have come full circle. After basic training, most Air Force personnel think their days of low crawling through tall prairie grass and performing weapons PT at o'dark thirty are over. It's funny the stuff one can miss. A group of civil engineers recently found themselves grinning from ear to ear as their faces swiped the dirt during the low crawl, as their arms stung from constant repetitions with the 8-pound M-16, and while the rain and temperature kept falling and falling.

Members of the 97th Civil Engineer Squadron, Altus Air Force Base, OK, revived a host of nostalgic basic training memories while participating in a joint combat engineering exercise with B Company, 62nd Army Engineers from Fort Sill. This was the first in what is hoped to be a series of exercises designed to help each unit better understand how the other branch of service performs in a contingency environment. Members of the 97th Services Squadron also participated, providing hot breakfasts and dinners to the folks in the field.

The week-long exercise took place Oct. 21-25, 2002, at Altus

AFB and was set up to provide each branch one day to show their contingency engineering capabilities. As CMSgt Mark Brejcha, the original visionary of the exercise, put it, "We wanted to develop an opportunity for both branches to spread their peacock feathers."

The airmen and soldiers were divided into two units, each containing both Army and Air Force personnel — one flight, led by an Army officer, and one platoon, led by an Air Force officer. "We wanted to ensure that everyone had a joint team attitude," said Chief Brejcha. "I think we succeeded."

The Air Force demonstrated its abilities in several tasks, including the construction of hardback tent shelters, airfield damage repair, minimum operating strip plotting and airfield lighting. For the Army, the most impressive part of the day came when they shadowed and assisted on day-to-day CE work orders.

"That's stuff we just don't get to do," said 2Lt Chip Gaylord, platoon commander. "Fort Sill has a private contractor that performs its work orders, so other than their AIT (Advanced Individual Training), our guys have limited exposure to common maintenance issues."

Those work orders included several different tasks that significantly affected Altus AFB, such as repairing a water line break, installing a gas line, pouring concrete pads at the Child Development Center and Youth Center, and a 'high-vis' lighting repair project at the Altus Thrift Store. In addition, heavy equipment operators began laying topsoil on an 8-acre area of land near a C-17 assault strip clear zone in an effort to reduce foreign object debris (FOD) and bird air strike hazards.

The Army soldiers benefited from seeing how the Air Force engineers operated on a day-to-day basis, and the Army troops had their opportunity to impress as well. "One of the things that impressed me the most was their self-reliance," said Chief Brejcha. "They have the ability to make (vehicle) repairs on the spot without the assistance of a motor pool."

Bravo Company ran the Air Force through a portion of their common task training. This training taught airmen how to move from station to station via patrol formations, where they learned skills from the application of camouflage and self-aid buddy care to the deployment of clamor mines and construction of hasty fighting positions. "I feel better about being able to take care of ourselves with this knowledge," said Maj Tom Davison, Camp Euphoria commander.

The culmination of the Army engineering day happened at night with a simulated aggression scenario. Airmen and soldiers



Members of both the 97th CES and the U.S. Army's B Co, 62nd Engineering Battalion pour a concrete pad for a storage shelter at the Altus Child Development Center. (Photos by Amn Richard Rose)

scrambled to jointly defend their air base as a small, 10-man opposing force team with AK-47s, hand grenades and artillery made an unsuccessful attempt to take over Camp Euphoria.

But the exercise wasn't all work and no play. Thursday brought Sports Day to Camp Euphoria, where the flight and platoon separated back into Army and Air Force teams. The two then competed for the first semi-annual Army/Air Force Sports Day Competition trophy. Events included 5-on-5 basketball, push-ups, sit-ups, wally ball and a

tug-o-war. It was a close competition, but the Army pulled out the final victory. We'll get 'em next time.

The exercise culminated in a boisterous combat dining-in that built joint esprit de corps. Originally designed to be outside with water grenades and fire hoses, it was moved inside due to the 34-degree temperature, pouring rain and high winds.

"If you asked me what the worst weather imaginable for a dining-in would be, I'd say you're looking at it," said 1Lt Hans Anker, dining-in coordinator and Mr. Vice.

With some last minute planning, the combat dining-in was salvaged and moved into the Community Activities Center, complete with Grog bowls, an obstacle course and even a live rock band. By the end of the night, soldiers and airmen were indistinguishable from one another as they crowded around the pool and ping-pong tables.

"It's great to see everyone coming together with the people they trained with during the week," said Lt Anker. "The interservice barrier has completely come down here."

The next morning the flag was lowered and Maj Davison and Chief Brejcha presented each soldier and airman with a Prime BEEF patch and hearty thanks for a job well done. "I think both sides got a lot out of the week," said Chief Brejcha. "I think this is the start of some 'good stuff'."

1Lt James M. Eschrich is chief, contract management, 97th Civil Engineer Squadron, Altus, AFB, OK.



CMSgt Mark Brejcha goes nose to nose with U.S. Army SSG Smith during the Sports Day push-up competition.

AFIT Provides Advanced Degree Opportunities to NCOs

The Air Force Institute of Technology is once again offering eight noncommissioned officers the opportunity to pursue an advanced science, engineering or management degree in-residence at Wright-Patterson Air Force Base, OH.

The goal of the Enlisted-to-AFIT Program is to provide commanders with a diverse and renewable source of highly proficient and educated career NCOs, said CMSgt Robert Hale, chief of Air Force enlisted professional military education at the Pentagon.

The program recognizes the important contributions that enlisted professional development has on enhancing the future total force, according to Lt Gen Richard E. "Tex" Brown III, deputy chief of staff for personnel at the Pentagon.

"In conjunction with other professional training and education programs, this advanced degree opportunity will further develop our NCOs' highly technical education and skills, leading to greater innovation and improved readiness," Brown said.

NCOs interested in applying for the 18-month program must be at least a technical sergeant with a minimum of eight years time in

service and 12 months time on station, and have three years retainability upon AFIT graduation. They must have completed the appropriate skill-level upgrade and resident professional military education schooling for their rank.

In addition, Hale said, since this program is designed to provide advanced education, applicants must possess a bachelor's degree from a regionally accredited college or university.

Besides academic transcripts, applicants also have to provide test scores from either the Graduate Record Examination or Graduate Management Admission Test, depending upon the specific AFIT degree program requirements.

Although not everyone can participate in this program, Hale strongly encourages enlisted members not to give up on pursuing advanced education.

"There are many opportunities available for enlisted members to continue their education, and they should take advantage of them all," he said. "By becoming experts in our career fields, our contributions become more significant, and it

enhances the professionalism of the enlisted corps as well."

Prospective students should contact Hale at robert.hale@pentagon.af.mil for additional information on Enlisted-to-AFIT program policies, procedures, guidelines and application process information. (SSgt A.J. Bosker, Air Force Print News)

A-Gram List

- 03-01—The MCU-2/P Protective Mask Returns to the USAF Inventory
- 03-02—Defense Logistics Agency Maintenance, Repair, and Operations (MRO) Services Program
- 03-03—Updated Computer-based Airfield Criteria Course
- 03-04—Bare Base Equipment Training
- 03-05—New Prime BEEF Orientation Video
- 03-06—Computer-Based Prime BEEF Home Station Training, Volume 2
- 03-07—Computer-Based Prime BEEF Home Station Training, Volume 3
- 03-08—Computer-Based Prime BEEF Home Station Training, Volume 4
- 03-09—Three-Level General Contingency Responsibilities Course
- 03-10—Liquid Propane Aircraft Fire Training Facility Multimedia Training Course

Visit the **AFCESA** public website at www.afcesa.af.mil/Library/Publications.

Integrating Training

Silver Flag helps ensure successful bare base operations

by Maj David B. Chisenhall, Jr.
HQ ACC

Train like we fight — it's more than just an Air Force philosophy at the Silver Flag exercise sites, where curriculum continues to evolve to meet the operational requirements of our air and space force.

Silver Flag has long been a multi-career field, total force program, bringing together personnel from active duty, Guard and Reserve Civil Engineer, Services and Personnel areas. It features crew-sized training for personnel in selected positions on Prime Base Engineer Emergency Force (BEEF), Prime Readiness in Base Services (RIBS), and Personnel Support for Contingency Operations (PERSCO) teams, as well as in leadership contingency decision making. The curriculum places emphasis on a balance of beddown, sustainment and recovery operations.

In addition, the program concentrates training on unique contingency equipment (Harvest Falcon/Eagle) and assets not normally available at technical training schools or home station. Silver Flag ensures that each Prime BEEF/RIBS and PERSCO team has a core of highly trained and capable individuals with the most current readiness training.

Personnel in the continental U.S. train at the Silver Flag site owned by Air Combat Command and operated by a cadre of personnel assigned to Det. 1, 823rd RED HORSE Squadron. Overseas, U.S. Air Forces in Europe operates a parallel Silver Flag site at Ramstein Air Base, Germany, and Pacific Air Forces operates a Silver Flag site at Kadena AB, Japan.

Integration = Realistic Training

The Chief of Staff of the Air Force recently directed implementation of the Combat Wing Organization structure. The Chief's vision is that "mission support in the expeditionary, rapid reaction, contingency-based Air Force of today is a core competency." The goal is to develop future leaders who understand the full scope of home station employment/sustainment as well as deployment, beddown and sustainment at contingency locations. Integration of Mission Support Group and other Agile Combat Support functions will create a synergistic training environment through increased realism and enhanced cross-functional interaction.

The first person to step forward to increase integration for ACC Silver Flag was

MSgt Sean Horan, 5th Maintenance Operations Squadron, Minot AFB, ND, takes part in the expeditionary combat support training for command chiefs and first sergeants now available at the Silver Flag exercise site, Tyndall AFB, FL. (Photos by MSgt Michael A. Ward)

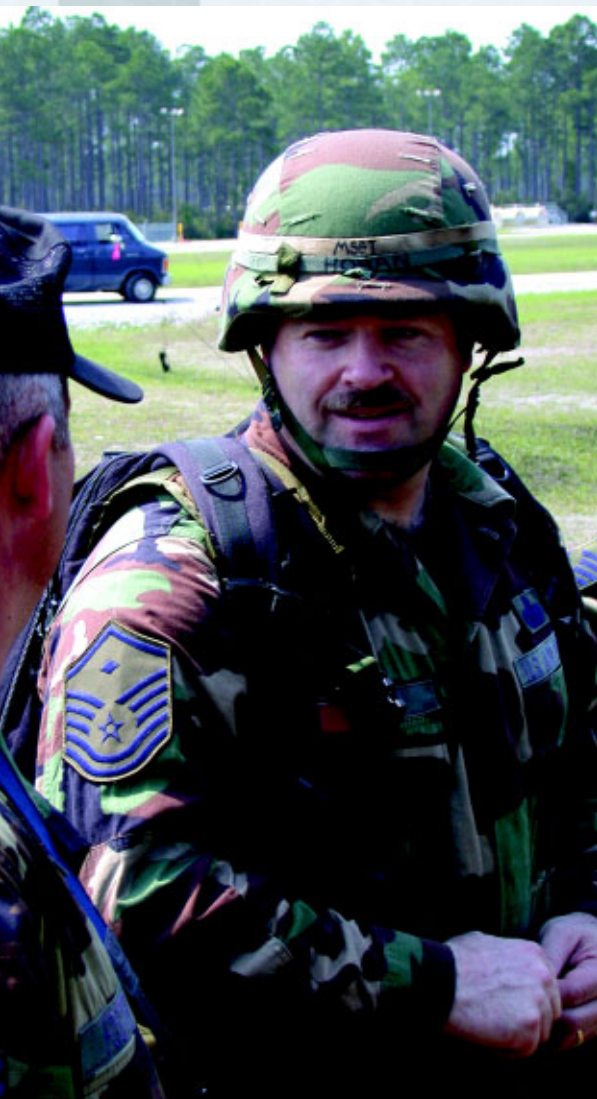
none other than the ACC Command Chief, CMSgt Dan Keane, who approached the staff about adding a First Sergeant/Command Chief block to the curriculum. Based on feedback from Operation ENDURING FREEDOM deployments, he wanted to make sure ACC was sending Command Chiefs and Shirts forward with proper contingency skills training.



First sergeants train on contingency equipment.

"As an expeditionary Air Force, our enlisted leadership must be prepared to bed down forces and carry out the mission immediately upon arrival at any deployed bare base," said Chief Keane. "Expeditionary Combat Support training for Command Chiefs and First Sergeants will provide the necessary tools and the mindset for us to hit the ground running."

The next step was the addition of a full-time First Sergeant to the cadre at the ACC Silver Flag site, who would double as instructor to bring key expeditionary concepts to First



Sergeants and Command Chiefs. It took only four months to get from the Chief's initial concept to the first November 2002 validation class. That first class was comprised of Chiefs and Shirts with recent OEF experience who were asked to evaluate and provide validation of the curriculum. Now the Twelfth Air Force Command Chief is scheduling ACC Chiefs and Shirts for all future course offerings, which is proving to be valuable training that Chiefs and Shirts didn't get in the past.

Communications, a key Mission Support area, is the backbone of the command and control infrastructure at contingency locations. Currently, Comm units do not have a dedicated site for integrated expeditionary combat support training. Very few, if any, base level Comm units get to train on their Theater Deployable Communications equipment. To fill this void, HQ ACC Civil Engineering and Communications and Information Systems stepped forward to add Comm by the end of fiscal year 2003 to the ACC Tyndall Silver Flag site.

The resultant leadership and team synergy added to existing CE, Services, Personnel and Shirt/Chief Silver Flag training will further meet the CSAF's vision. The Comm curriculum will maintain the current Silver Flag training philosophy of providing total force, specialty crew-size contingency skills training focused on hands-on familiarization and operations training on key contingency equipment not available at technical training schools or home station.

ACC is also considering adding the Contracting field to ACC Silver Flag to take advantage of the synergy between Contracting and the critical CE, Services and Comm contingency activities that Contracting supports.

Building a Cohesive Team

The goal of Silver Flag is to continue to provide hands-on experience with low-density/high-demand bare base specialty/equipment in a true contingency field training environment. Silver Flag training culminates in a contingency beddown/recovery exercise that integrates Mission Support Group commanders and their core specialties into a cohesive team to establish command and control, conduct beddown, and perform sustainment and recovery operations at a forward deployed contingency location.

As ACC Silver Flag Det 1 Commander Maj Jani McCreary relates: "Silver Flag expansion and the resultant improved, integrated training environment help form a seamless, agile and responsive mission support system to make a bare base operation successful, anytime, anywhere!"

Maj David Chisenhall is a program manager in the Base Support Division, Civil Engineer Directorate, HQ Air Combat Command, Langley AFB, VA.



MSgt Michael Hoglen, 96th Maintenance Operation Squadron, counsels SrA April Roseborough, 96th Services Squadron, both from Eglin AFB, FL, during a training exercise for first sergeants at the Silver Flag Exercise Site. In the exercise, Airman Roseborough portrays a distraught person armed with an explosive device.

Silver Flag Paves the Way for Contingency Operations

Each year, Det. 1, 823rd RED HORSE Squadron hosts 34 sessions of hands-on training in airfield recovery and bare-base set up using equipment and materials many trainees have never used or don't have access to at their home stations.

Of the six days spent at the Silver Flag Exercise Site, Tyndall Air Force Base, FL, students spend four days learning, planning and preparing for an end-of-week exercise that tests what they have learned.

They spend Monday through Wednesday in class and in the field, learning to set up and operate deployment equipment and formulating a phased beddown plan for a 1,100-person, 24-aircraft operation. The team determines utility and facility needs, as well as field feeding requirements, service contract requirements, personnel accountability procedures, construction schedule, and vehicle, radio and lodging assignments.

Once the students determine how they will construct and operate their bare base, the command and control staff briefs the plan to the squadron's cadre on Wednesday afternoon. At 6 a.m. Thursday, the exercise begins and the team implements its plan.

"The goal is to be able to support 200 personnel immediately and a larger contingency force of up to 1,100 people within 72 hours," said TSgt Robert Barnett, Det. 1, 823rd RHS command and control instructor. "They only have one day to complete all of the taskings, and it doesn't matter how long it takes. They have to keep working until the job is done, even if it means working until midnight."

With 200 people moving about, operating heavy equipment and removing ordnance, safety is a big consideration. For this reason, students are briefed daily about safety concerns. During the course of the exercise, the cadre watches over the teams to ensure they are doing their job safely.

Since coming to Tyndall in 1994, Silver Flag has undergone many changes with respect to the way training is conducted. For instance, training was previously accomplished with only core people from various active duty, Guard and Reserve units who would, in turn, take their training home to their troops. Now, entire unit type code teams come to Silver Flag so every member will have the opportunity to use the equipment they will see in the field.

"We're training people for real-world situations," said CMSgt Stephen Rudat, Det. 1, 823rd RHS site chief. "UTCs deploy as a team, so the members of each unit need to be trained as a team." (From an AETC News Service article by 2Lt Albert Bosco, 325th Fighter Wing public affairs)

A New Twist on an Old Concept

ACC reincarnates its management evaluation team

by William L. Luthie, PE
HQ ACC

Solutions through teamwork — that's the goal of Air Combat Command's new Civil Engineer Management Assistance Team. CEMAT members are visiting civil engineer squadrons to review management processes and offer solutions, identify best practices, share success stories and even provide training.

Today's CEMAT is a resurrected and reincarnated version of CE core

objective was to promote the sensibility of the merger to wing leadership and ensure proper use of resources. However, by the mid-1980s a changing Air Force focus led to discontinuation of the CESMET process at Air Staff level, and it eventually disappeared as an engineering and services management tool.

By the late 1990s Air Force Civil Engineering was a much different force than it was during the Cold War era. Base closures, manpower reductions, organizational realignments and privatization efforts resulted in a much smaller force, in many cases exacerbating the challenges associated with infrastructure management. In an effort to make this smaller force as efficient as possible and promote sound management practices, Pacific Air Forces resurrected the CEMAT concept in 2000. PACAF structured its CEMAT concept of operations around a review of CE unit compliance checklists. Benchmarking off PACAF's lead, ACC also instituted a command CEMAT, publishing its concept of operations in late 2001 and beginning base visits in February 2002.

ACC's CEMAT effort provides management assistance, via a team of functional experts, to CE squadron personnel, primarily in the operations and engineering flights. Its purpose is to review management processes, identify best practices, share success stories and provide recommendations on how to improve operational performance. The core team, led by the deputy chief of the ACC Operations and Infrastructure Division, consists of functional experts from the Operations, Programs and Construction Divisions. Representatives from other divisions are added at the base's request.

CEMAT's objective evaluation of a squadron's performance includes on-the-spot training and/or recom-

mendations to improve management processes. In addition, the team highlights best practices and commendable items that are recommended for adoption across the command.

Visits are ideally scheduled within the first few months of a new squadron commander's arrival. This allows the commander to develop a sense of what areas may need assistance. The visits typically last a week and are kept very informal. A tabletop out-brief is provided to the CE squadron commander at the end of the week, and no follow-up action is required to close any of the items addressed. ACC's goal is to visit each base on a two-year cycle, coinciding with the typical commander's tenure.

With eight bases visited so far, results to date are very promising. The ACC CEMAT team identified 17 best practices in the first year, including use of commercial solicitations to reduce bid times and improve coordination with electronic routing; employment of co-op students in non-traditional roles (resources and environmental); use of Facility Maintenance Teams to sustain high-use, high-visibility facilities; and the innovative use of emerging technologies to improve the efficiency of facility management practices. Additionally, the team identified several common trends to be addressed at the headquarters level concerning training shortfalls, excessive civilian personnel lapse rates and an aging vehicle fleet.

The CEMAT initiative is a win-win concept for the command and CE squadron commanders alike. It is paying great dividends by validating our business practices and ensuring our processes are being executed in an effective manner.

William L. Luthie is a CEMAT team member in the Operations Branch, HQ Air Combat Command, Langley AFB, VA.

Newly assigned commanders are lauding the objectivity that CEMAT's outside perspective offers. As Lt Col Scott Jarvis, 366th CES commander, Mountain Home AFB, ID, commented to Brig Gen Patrick Burns, the ACC Civil Engineer:

"...CEMAT proved extremely worthwhile ... they highlighted some issues that we were aware of, but in addition, uncovered many other items that we were not ... their expertise and hard work will bear fruit here at Mountain Home. The timing was great and I highly recommend the effort for the rest of the command!"

For more information, log on to the ACC CEMAT website:
<https://ce.acc.af.mil/CEO/CEMAT/CEMAT%20web%20page.htm>

headquarters teams from years past. During the mid-1970s and early 1980s, Headquarters Air Force and several major commands formally established Civil Engineering Management Evaluation Teams and later, Civil Engineering and Services Management Evaluation Teams.

CEMET visits were conducted to assess day-to-day operation and management of civil engineer squadrons and ensure that required CE manpower was properly justified for new initiatives. CESMET came into being shortly after the merger of Civil Engineering and Services. Its

Continuing Education

Registration for resident courses, which are offered at Wright-Patterson AFB, OH, begins approximately 90 days in advance. Applications must go through the student's MAJCOM Training Manager. Registration for the satellite offerings, marked with an (S), closes 30 days before broadcast. For satellite registration, course information, or a current list of class dates, visit the CESS website at: <http://cess.afit.edu>.

AFIT Civil Engineer and Services School

Wright-Patterson AFB, OH

Course No.	Title	Off	Start Dates	Grad Dates
MGT 101	Intro. to Base Civil Engineer Organization	03C	07-Jul	30-Aug
ENV 521 (S)	Hazardous Waste Management	03B	14-Jul	18-Jul
MGT 423 (S)	Project Programming	03C	28-Jul	08-Aug
ENG 470 (S)	Electrical Systems for Managers	03A	04-Aug	08-Aug
ENG 520 (S)	Comprehensive Planning Development	03A	11-Aug	22-Aug
MGT 444 (S)	Competitive Sourcing	03A	18-Aug	22-Aug
ENG 555 (S)	Airfield Pavement Construction Inspection	03B	25-Aug	29-Aug
Seminar (S)	Energy Savings Performance Contract	03D	26-Aug	26-Aug
MGT 102	Intro. to Base Civil Engineer Organization for Reserve Forces	03B	15-Sep	26-Sep
ENG 460 (S)	Mechanical Systems for Managers	03A	15-Sep	18-Sep

Sheppard AFB, TX

Course No.	Title	Start Dates	Grad Dates
J3AZR3E051-007	Airfield Lighting	11-Aug/10-Sep	20-Aug/19-Sep
J3AZR3E051-008	Electrical Distribution Sys. Maint.	14-Jul/11-Aug/15-Sep	08-Aug/08-Sep/10-Oct
J3AZR3E051-010	Bare Base Electrical Systems	16-Sep	29-Sep
J3AZR3E051-012	Fire Alarm Systems	03-Sep	26-Sep
J3AZR3E051-013	Intrusion Detection Systems (IDS)	09-Sep	26-Sep
J3AZR3E071-001	CE Adv. Elec. Troubleshooting	28-Jul/25-Aug/24-Sep	22-Aug/22-Sep/22-Oct
J3AZR3E472-000	Liq. Fuels Storage Tank Entry Spvrs.	16-Sep	26-Sep
J3AZR3E472-001	Liq. Fuels Sys. Maintenance Tech.	09-Sep	22-Sep
J3AZR3E451-004	Fire Suppression Systems Maint.	18-Jul/11-Aug/08-Sep	07-Aug/29-Aug/26-Sep
J3AZR3E471-101	Bare Base Water Purification and Distribution Systems	16-Jul/30-Jul/13-Aug/10-Sep	25-Jul/08-Aug/22-Aug/19-Sep
J3AZR3E453-003	Pest Management Certification	15-Sep	10-Oct
J3ARR3E453-002	Pest Management Re-Certification	28-Jul/18-Aug/22-Sep	01-Aug/22-Aug/26-Sep
J3AZR3E052-013	CE Advanced Electronics	07-Jul/04-Aug/04-Sep	01-Aug/29-Aug/01-Oct
J3AZR3E072-002	Troubleshoot. Elec. Power Gen. Eq.	14-Jul/05-Aug/27-Aug/19-Sep	04-Aug/26-Aug/18-Sep/10-Oct
J3AZR3E072-113	Bare Base Power Generation	04-Aug	28-Aug
J3AZR3E151-013	HVAC/R Controls Systems	07-Jul/11-Aug/17-Sep	08-Aug/15-Sep/22-Oct
J3AZR3E151-014	Direct Expansion Systems	11-Aug/29-Sep	11-Sep/30-Oct
J3AZR3E151-015	Indirect Expansion Systems	08-Jul/29-Jul/12-Sep	25-Jul/15-Aug/01-Oct
J3AZR3E050-001	CE Work Estimating	08-Sep	26-Sep

Ft. Leonard Wood, MO

Course No.	Title	Start Dates	Grad Dates
J3AZP3E571-003	Engineering Design	18 Aug	29-Aug
J3AZP3E571-004	Construction Surveying	14-Jul/04-Aug/08-Sep	25-Jul/15-Aug/19-Sep
J3AZP3E971-003	Advanced Readiness	14-Jul/11-Aug/15-Sep	18-Jul/15-Aug/19-Sep
J3AZP3E971-005	NBC Cell Operations	21-Jul/08-Sep	25-Jul/12-Sep

Indian Head, MD

Course No.	Title	Start Dates	Grad Dates
J5AZN3E871-001	Adv. Access and Disablement	14-Jul/04-Aug/25-Aug/15-Sep	25-Jul/15-Aug/08-Sep/26-Sep
J5AZN3E871-002	Advanced EOD Course	14-Jul/04-Aug	25-Jul/15-Aug

Gulfport, MS

Course No.	Title	Start Dates	Grad Dates
J3AZP3E351-001	Low Slope Maint. & Repair	07-Jul/18-Aug/15-Sep	17-Jul/28-Aug/25-Sep
J3AZP3E351-002	Fabrication Welded Pipe Joints	04-Aug/08-Sep	15-Aug/19-Sep
J3AZP3E351-003	Metals Layout Fab. & Welding	14-Jul/14-Aug/15-Sep	31-Jul/28-Aug/02-Oct

Additional course information is available on the 366th TRS website at <https://webm.sheppard.af.mil/366trs/default.htm>. Students may enroll on a space-available basis up until the class' start date by contacting their unit training manager.

CE Leaders Meet to Review Progress and Plan for the Future

As the United States' preparations for disarming Iraq of its weapons of mass destruction shifted into high gear, Air Force civil engineer leaders met at the Air Force Civil Engineer Support Agency, Tyndall Air Force Base, FL, in December 2002 to review progress and plan for the future.

The CAF Convenes

On Dec. 2, Brig Gen Patrick A. Burns, the Air Combat Command Civil Engineer, convened the Combat Air Forces Civil Engineer (A7) Council. The A7 Council is comprised of members from Air Combat Command, Pacific Air Forces, United States Air Forces in Europe, Air Force Space Command, Air Force Special Operations Command, Air Education and Training Command, Air Force Reserve Command, and Air National Guard. Members of

structure, the CAF civil engineers serve in an advisory capacity to the Air Force Civil Engineer Readiness Board and the Program Review Committee.

The CAF CE Council serves as the forum to introduce, review and discuss civil engineer topics of concern to the CAF, and to carry issues forward to decision-making organizations within the CE community. The Council focuses on CAF-specific topics, including the Expeditionary Air and Space Force; fielding forces; research, development, acquisition and system integration; readiness training; organization; manning; and employment concepts. After reviewing and approving the CAF CE A7 charter, the council received briefings on construction in Southwest Asia, a new Air Force Contract Augmentation Program solicitation, Air and



expeditionary combat support, Airborne RED HORSE, and several other civil engineer operational issues.

Senior Leaders Meeting

On Dec. 3, Maj Gen Earnest O. Robbins II, The Civil Engineer, convened a four-day meeting of Air Force civil engineer senior leaders at the Tyndall AFB Conference Center.

Following a welcome by Col Bruce R. Barthold, the AFCEA commander, Lt Gen Michael E. Zettler, the Air Force Deputy Chief of Staff for Installations and Logistics, presented the Air Force's expeditionary perspective. He urged participants to lead first and always think "expeditionary," take care of their people, and use the week to map out the way ahead. He observed that now is the time for "unconventional wisdom."

Following opening comments by Maj Gen Robbins and a review of CE worldwide action items, the senior leaders addressed a comprehensive list of topics, including current programs, enlisted issues, mid-level officer professional development, housing excellence, basing issues, the Military Construction Program, real property maintenance, Operation ENDURING FREEDOM lessons learned, expeditionary engineering and emergency services, environmental concerns, strategic sourcing and utilities privatization.

In addition, Mr. Nelson F. Gibbs, Assistant Secretary of the Air Force for Installations, Logistics and Environment, presented views from his office, and Maj Gen Carl A. Strock, Director of Military Programs, Army Corps of Engineers, gave his perspective on Army installation management. (Dr. Doug Merkle, HQ AFCEA)



Air Force civil engineering's senior leaders met in December to address the career field's hot topics.

AFCEA and HQ USAF/ILE's CE Readiness Division serve as advisors.

Since 1999, civil engineers from CAF MAJCOMs have met as a corporate body to address common concerns primarily related to "war fighting" issues. In a hierarchical

Space Expeditionary Force Cycle 4 status under the CSAF two-hit policy, a Force Module Framework for defining expeditionary capability, employment of the GeoBase/GeoReach system, operational concepts for an NBC environment,

CEs Aid in Space Shuttle Columbia Recovery

Air Force civil engineers played an active role in recovery efforts following the tragic loss of the Space Shuttle Columbia on Feb. 1.

The day of the disaster, the 2nd Civil Engineer Squadron from Barksdale Air Force Base, LA, deployed a 70-person disaster assistance team to Lufkin, TX, at the request of the Texas Department of Public Safety. They were the first federal agency on scene and quickly set up a mini-Disaster Control Group to assist local officials. The multi-functional team included an on-scene commander and representatives from fire, explosive ordnance disposal, readiness, surveying, contracting and legal.

The 2nd CES EOD Flight had existing technical data for the Shuttle orbital vehicle on hand, and deployed personnel were able to act as advisors to local fire and law enforcement officials. They educated local responders on hazards associated with Shuttle debris and helped evaluate pieces as they were located.

As the National Aeronautics and Space Administration and the Federal Emergency Management Agency arrived on scene and assumed control, the team from Barksdale scaled back its operations and returned home on Feb. 3 and 4.

Back at Barksdale, members of the 2nd CES rallied to prepare facilities critical to the recovery and investigation. The Base Supply mobility processing facility, which had recently been reconfigured for an Article 32 hearing, became the accident investigation headquarters and command center. A portion of a multi-aircraft B-52 hangar was set up as a temporary mortuary facility, with CE providing generators, lights, and electrical locks for security. Nose Dock 6, normally used for B-52 maintenance, was prepared for use as the primary NASA/FEMA recovery center. CE thoroughly cleaned the building, sanitized hoists, provided

additional lighting and electrical panels, and installed hangar door rails for security purposes. Heavy duty plastic was spread over the floor to provide a surface for laying out debris.

On Feb. 4 the seven-person EOD team that would perform the bulk of the recovery and advisory work in Texas hit the ground running at Barksdale. Headed by the EOD functional manager from Headquarters Air Force Space Command, SMSgt Rocky Dunlap, and comprised of six EOD members from Patrick AFB, FL, the team organized into three, two-person teams and officially accepted responsibility for recovery operations from the 2nd CES EOD Flight.

At the outset, two teams reported for duty in Texas and the third team remained at Barksdale to supervise the inspection of shuttle debris arriving at Nose Dock 6. The field teams worked long hours, from sunup to sundown, responding to reports of debris suspected to contain, or to have come in contact with, explosives or explosive devices. Rough terrain, cold weather and rain mixed with sleet or snow for days on end made their jobs long and uncomfortable. In the words of team leader SMSgt Dunlap, "EOD responses to Shuttle material continue to be in the thickest of briar patches, swampiest marshes and dense foliage."

With the addition of some 2,000 Department of Forestry and fire fighter search workers in mid-February, the EOD team became heavily involved in providing safety briefings and explosives identification training for all search teams. They created a traveling identification board that featured inert mock-ups of the items they had found and anticipated finding. They also printed up and distributed color photographs of explosive devices associated with the Shuttle.



SSgt Allan Powell, 45th CES, uses a Global Positioning System during Space Shuttle Columbia recovery operations. More than 5,000 ground search team members searched remote areas, marking questionable debris with a GPS coordinate for further investigation by the EOD team. (Photo by SSgt John Carroll)

Eventually, all three two-person teams were stationed in Texas, with search efforts focused on a 10-mile by 240-mile corridor beneath the Shuttle flight path from Ellis County southeast of Fort Worth to the Toledo Bend Reservoir. At the height of the operation there were more than 70 state, federal, and private agencies involved in the effort, with more than 5,250 workers mobilized to assist. The EOD teams were engaged in supporting efforts on the ground, in the air, and under water, with approximately 45 aircraft and helicopters and 66 divers and sonar teams assisting in the search.

By mid-March over 44,000 line items of debris had been identified, catalogued, and prepared for shipment from Barksdale to the Kennedy Space Center. Explosive items were stored in a special munitions bunker on base until proper disposition or disposal arrangements could be coordinated with NASA.

The members of the EOD Shuttle recovery team who served without rotation from Feb. 5 are: SMSgt Rocky Dunlap, HQ AFSPC, and SSgt John Carroll, SSgt Mike Chamberlain, SrA Marlon Mitchell, SSgt Alan Powell, TSgt George Price, and TSgt Brett Rogers, all of the 45th CES, Patrick AFB, FL. (Lois Walker, HQ AFCEA Historian)

CEs in Joint Contact Team Program With Bulgaria

A four-person team of U.S. military pavements experts participated in a Mil-to-Mil visit to Bulgaria from Feb. 2-9. The primary objective of the visit was to familiarize their Bulgarian military counterparts with how the U.S. upgrades airfields to meet U.S. and NATO standards. A highlight of the visit was the exchange of information on U.S. Air Force organizational structure and how squadrons are responsible for airfield maintenance and airfield damage repair.

MSgt Brian Richardson, HQ United States Air Forces in Europe Command Pavements Superintendent, organized the visit on behalf of HQ USAFE Plans and Programs and U.S. European Command. Joining him on the trip were Mr. James Greene of the Air Force Civil Engineer Support Agency and two engineers from the Army Corps of Engineers Engineer Research and Development Center: Dr. Raymond Rollings from the Cold Regions Research and Engineering Laboratory and Mr. Don Alexander from the Waterways Experiment Station.

The team traveled to Sophia, Plovdiv and Yambol, Bulgaria, to brief the Bulgarian Air Staff and leaders from Graf Ignatievo Air Base and Bezmer AB on various airfield topics. The Bulgarian staff at each location was thrilled with the presentations and felt the Mil-to-Mil visit was a glowing success. Since Bulgaria has been invited to join NATO in 2004, military leaders have taken aggressive steps to modernize three airfields to ensure interoperability with NATO.

Mil-to-Mil visits are conducted under the Joint Military Contact Program, which is sponsored by the Chairman of the Joint Chiefs of Staff and administered by U.S. European

Command. The program was initially developed in May 1992 for Poland, Hungary and Czechoslovakia. Although expected to last only six months, it has now been going strong for over a decade and includes several countries — Latvia, Estonia, Lithuania, Belarus, Poland, Hungary, the Czech Republic, Slovakia, Croatia, Albania, Macedonia, Romania and Bulgaria.

The goal of Mil-to-Mil visits is to help the military forces of these nations develop into positive, constructive elements of society during their transitions to democracy and free market economies. (MSgt Brian Richardson, Command Pavements Superintendent, HQ USAFE)

Civil Engineers Disarm Crashed F-16

Air Force explosive ordnance disposal members helped recover an armed Norwegian aircraft that crashed while attempting to land at Ganci Air Base, Kyrgyzstan, in December.

The Norwegian F-16's main struts collapsed as it touched down Dec. 17. Crews had less than 10 minutes to remove the aircraft before two other F-16s, which were short on fuel and unable to divert, were scheduled to land.

Two EOD technicians from the 376th Expeditionary Civil Engineer Squadron at Ganci responded to the crash and began safing the aircraft's weapons when they noticed a slight ammonia odor — a signal that a weapon may have been damaged. After conferring with the on-scene commander and further examining the aircraft, they determined that only the weapon's external power unit had fired, and that the weapons were safe.

Because the aircraft's landing gear was damaged in the crash, emergency crews had planned to hook the plane to a tug and drag it across the airfield to clear the runway for the inbound F-16s. The EOD team instead recommended leaving the aircraft in place, safing the munitions and then removing them.



U.S. military pavements experts Dr. Raymond Rollings (front row, second from left), MSgt Brian Richardson (front row center), Mr. James Greene and Dr. Don Alexander (second row center, respectively) visited with counterparts in the Bulgarian military recently to provide information on upgrading airfields to meet U.S. and NATO standards. (AFCEA photo)

Officials agreed, and the inbound F-16s were able to land and stop short while the EOD team disarmed the aircraft. (MSgt Michael A. Ward, HQ AFCEA Public Affairs)

EOD technicians performed safing operations on an armed Norwegian F-16 after it crashed on the runway at Ganci AB, Kyrgyzstan. (Photo courtesy 376th EOD)



2002 Air Force Civil Engineer



Lt Gen Michael E. Zettler, Deputy Chief of Staff for Installations and Logistics, Headquarters U.S. Air Force, has announced the recipients of the 2002 Air Force Civil Engineer Awards. The awards were presented Feb. 19, during National Engineers Week, at the 41st annual Civil Engineer Awards Luncheon, Bolling Air Force Base, Washington DC. The Balchen/Post winner was recognized at the 37th annual International Aviation Snow Symposium, May 3-7, in Buffalo, NY. Following are the winners (in bold) and runners-up.

Outstanding Civil Engineer Unit Award and The Society of American Military Engineers Curtin Award
Large Unit
86 CEG, Ramstein AB, Germany (USAFE)

Small Unit
43 CES, Pope AFB, NC (AMC)

Brigadier General Michael A. McAuliffe Award (Housing Flight)
7 CES, Dyess AFB, TX (ACC)
341 CES, Malmstrom AFB, MT (AFSPC)

Major General Robert C. Thompson Award (Resources Flight)
37 CES, Lackland AFB, TX (AETC)
100 CES, RAF Mildenhall, UK (USAFE)

Brigadier General Archie S. Mayes Award (Engineering Flight)
366 CES, Mountain Home AFB, ID (ACC)
319 CES, Grand Forks AFB, ND (AMC)

Major General Clifton D. Wright Award (Operations Flight)
437 CES, Charleston AFB, SC (AMC)
341 CES, Malmstrom AFB, MT (AFSPC)

Chief Master Sergeant Ralph E. Sanborn Award (Fire Protection Flight)
18 CES, Kadena AB, Japan (PACAF)
99 CES, Nellis AFB, NV (ACC)

Senior Master Sergeant Gerald J. Stryzak Award (EOD Flight)
18 CES, Kadena AB, Japan (PACAF)
56 CES, Luke AFB, AZ (AETC)

Colonel Frederick J. Riemer Award (Readiness Flight)
305 CES, McGuire AFB, NJ (AMC)
18 CES, Kadena AB, Japan (PACAF)

Environmental Flight Award
56 CES, Luke AFB, AZ (AETC)
437 CES, Charleston AFB, SC (AMC)

The Society of American Military Engineers Newman Medal
Col James T. Ryburn, HQ ACC, Langley AFB, VA (ACC)
Col Paul W. Somers, 75 CEG, Hill AFB, UT (AFMC)

The Society of American Military Engineers Goddard Medal
Active Duty
MSgt Allen E. Jedlicki, 49 MMS, Holloman AFB, NM (ACC)
SMSgt William W. Shelton, HQ AETC, Randolph AFB, TX (AETC)

Air Force Reserve
SMSgt Larry P. Lomax, HQ AFCEA, Tyndall AFB, FL (AFCEA)

Air National Guard
CMSgt Kenneth C. Wolf, 179 CES, Mansfield Lahm Airport, OH (ANG)

The Society of American Military Engineers Technology Advancement Medal
Mr. Phillip C. McMillan, 75 CEG, Hill AFB, UT (AFMC)

Major General Joseph A. Ahearn Enlisted Leadership Award
CMSgt James A. Martin, 18 CES, Kadena AB, Japan (PACAF)
CMSgt Jeffrey A. Karls, 52 CES, Spangdahlem AB, Germany (USAFE)

The Harry P. Rietman Award (Senior Civilian Manager)
Michael R. Toriello, 355 CES, Davis-Monthan AFB, AZ (ACC)
Glenn W. Easterby, 437 CES, Charleston AFB, SC (AMC)

Major General Augustus M. Minton Award (Outstanding Air Force Civil Engineer magazine article)
Ms. Teresa M. Bracher, 45 CES, Patrick AFB, FL (AFSPC)
Mr. Creighton A. Lee, 15 CES, Hickam AFB, HI (PACAF)

Major General William D. Gilbert Award
Officer
Capt Charles D. Perham, HQ ACC, Langley AFB, VA (ACC)
Capt Marvin T. Ee, HQ AETC, Randolph AFB, TX (AETC)

Enlisted
MSgt Troy D. Odden, Seventh Air Force, Osan AB, Korea (PACAF)
CMSgt Timothy J. Seigal Sr., HQ ACC, Langley AFB, VA (ACC)

Civilian
Sheila Schwartz, HQ AMC, Scott AFB, IL (AMC)
Jack C. Bush, HQ USAF, Washington DC (USAF)

**Major General Eugene A. Lupia
Award**

Military Manager

**Capt Christine Y. Rilovick, 775
CES, Hill AFB, UT (AFMC)**
1st Lt Kristen D. Bakotic, 15 CES,
Hickam AFB, HI (PACAF)

Military Technician

**TSgt Max B. Babbitt, 9 CES,
Beale AFB, CA (ACC)**
TSgt Charles F. Jenkins, 436 CES,
Dover AFB, DE (AMC)

**Chief Master Sergeant Larry R.
Daniels Award (Military
Superintendent)**

**SMSgt Kevin N. Remedies, 86
CES, Ramstein AB, Germany
(USAFE)**
SMSgt Benjamin E. Brooks, 18
CES, Kadena AB, Japan (PACAF)

**Outstanding Civil Engineer
Senior Military Manager**

**Lt Col Michael P. Conner, 823
RHS, Hurlburt Field, FL (ACC)**
Lt Col Maria J. Dowling, 437 CES,
Charleston AFB, SC (AMC)

**Outstanding Civil Engineer
Civilian Manager**

**Steven A. Robertson, 305 CES,
McGuire AFB, NJ (AMC)**
Malinda G. Mathews, 2 CES,
Barksdale AFB, LA (ACC)

**Outstanding Civil Engineer
Civilian Supervisor**

**Colin X. King, 48 CES, RAF
Lakenheath, UK (USAFE)**
John W. Melvin Jr., 436 CES, Dover
AFB, DE (AMC)

**Outstanding Civil Engineer
Civilian Technician**

**Paul A. Claydon, 48 CES, RAF
Lakenheath, UK (USAFE)**
Kimberly C. Hurt, 28 CES, Ellsworth
AFB, SD (ACC)

**Outstanding Civil Engineer
Individual Mobilization**

**Augmentee
Officer Manager
Maj James E. Lehman, 4 CES,
Seymour Johnson AFB, NC (ACC)**
Maj William B. Harris III, 43 CES,
Pope AFB, NC (AMC)

Enlisted Manager

**MSgt Karen D. Craft, 347 CES,
Moody AFB, GA (ACC)**
CMSgt Leonard Apo, HQ PACAF,
Hickam AFB, HI (PACAF)

Curtin Award Winners

2002 Outstanding Civil Engineer Units

43rd Civil Engineer Squadron

Mission: The 43rd CES is responsible for the complete support of all facilities and infrastructure located on Pope AFB; trains base personnel on contingency response to disasters, both natural and man-made; provides the full spectrum of emergency services from fire/rescue to explosive ordnance disposal; and delivers combat support to contingency locations worldwide.



Unique Requirements: Pope AFB directly supports the 18th Airborne Corps and the 82nd Airborne Division at Fort Bragg. We literally put the "Air" in "Airborne." The base is home to two C-130 squadrons, the only active duty tactical aeromedical evacuation squadron, and seven major tenant units including two A-10 squadrons, the 18th Air Support Operations Group, the Air Force Combat Control School, and the 53rd Aerial Port Squadron (Reserve unit).

Recent Accomplishments: Winner of the 2002 Air Force Outstanding Civil Engineer Unit Award, small unit category, "Let's Roll!" was the cheer from the 43rd CES as it deployed 92 troops last year in support of Operations ENDURING FREEDOM and NOBLE EAGLE. The deployed teams executed 500 work orders worth \$300,000 in only 90 days, replaced an entire tent city with Alaskan shelters in Diego Garcia, provided crash/rescue

support at numerous overseas locations, and eliminated dangerous stockpiles of munitions by disposing of 2,617 ordnance items in the Middle East.

At home, the squadron led a \$7.1 million repair of the busiest runway in the command, milling and overlaying the main landing area and assault strip, correcting major drainage issues and replacing critical airfield lighting systems, all in less than 30 days using four major contracts and in-house forces. The 43rd CES executed the best year-end in its 82-year history, awarding more than 30 projects valued at \$21.3 million to repair some of the worst infrastructure in AMC. It also kept on track and within the Congressionally Noted budget a project to whole-house renovate 1933 vintage general officer/senior officer quarters.

Pope was selected as the first air force base to build a quad concept dormitory, which the 43rd CES partnered with the command design team and others to develop. The Operations Flight's \$2.3 million performance-based statement of work package for the base custodial service

contract was chosen as the most successful statement of work in DoD, and will be used as a benchmark for other DoD installations.

Pope continues to maintain an outstanding record with state environmental regulators, garnering kudos for its air quality program. Leading the way in DoD-sponsored chemical/biological attack response and recovery programs, Pope is one of three Air Force bases worldwide chosen to participate in the Joint Service Installation Pilot Program.

"Excellence is Boundless!" is written on the squadron flag, which flies proudly outside the CE compound. Ask any 43rd CES member and they'll tell you it's not just a motto — it's a fact.

Parent Unit: 43rd Airlift Wing
(Air Mobility Command)

Location:
Pope Air Force Base, NC

Commander:
Lt Col James E. Welter

Assigned Personnel:
250 military and
100 civilians

Outstanding Community Planner
Michael T. Flahive, HQ AMC,
Scott AFB, IL (AMC)
 Stacie Y. Kaneshiro, 15 CES,
 Hickam AFB, HI (PACAF)

Balchen/Post Award (Snow and Ice Removal)
3 CES, Elmendorf AFB, AK (PACAF)
 92 CES, Fairchild AFB, WA (AMC)

2003 Air Force National Society of Professional Engineers Federal Engineer of the Year Military
Lt Col Gary D. Chesley, HQ ACC, Langley AFB, VA (ACC)

Civilian
James L. Greene, HQ AFCESA, Tyndall AFB, FL (AFCESA)



(Above) TSgt Perry Mooney, Dover AFB, DE, shows a family day visitor the video camera on an explosive ordnance disposal robot. (Inset) MSgt Ken Jordan, command geointegration manager for Air Combat Command, exhibits GeoReach equipment during Engineers Week Family Day.

CMSgt Jim Podolske, Air Force Civil Engineer Support Agency, gives an interactive fire safety test to several visitors during Engineers Week Family Day in Washington D.C. Feb. 15.

86th Civil Engineer Group

Mission: Provide, maintain and protect real property assigned to the 86th Airlift Wing, the Kaiserslautern Military Community and associated units while supporting worldwide contingencies with trained combat engineers and equipment.



Unique

Requirements: Ramstein AB is located near the cities of Ramstein and Kaiserslautern, Germany, and is home to the 86th Airlift Wing, Headquarters USAFE and Headquarters AIRNORTH. The 86th CEG maintains over 21.3 million square feet of real property, 1,766 facilities and over 5,000 housing units on 5,144 acres at Ramstein, Sembach, Einsiedlerhof, Kapaun, Landstuhl, Vogelweh and 20 geographically separated units.

Recent Accomplishments: The 86th CEG conquered numerous challenges in 2002. The group excelled in readiness, deploying 174 engineers to 12 separate AEF and OEF locations. Members built a 76,000-square foot pallet assembly area to organize and fill special

containers used to drop 2.5 million humanitarian daily rations into Afghanistan. It also supported 40 nations participating in the world's largest communications exercise, COMBINED ENDEAVOR.

Huge construction efforts dot the local landscape as civil engineers manage \$2 billion covering four major construction programs. They are continuing the conversion of Ramstein from a fighter base to an airlift base through \$150 million in facility construction. An additional \$384 million in airfield projects continued transforming Ramstein into EUCOM's premier strategic airlift hub and "Gateway to Europe." The quality of housing saw a major boost with the completion of the first phase of a \$600 million, 10-year renovation program.

The perennial award-winning Environmental Flight managed USAFE's largest restoration program, completed restoration work on 36 contaminated sites and programmed \$15.6 million to restore the base's final 27 sites. The flight also manages the command's largest recycling program, salvaging 15 million pounds, equal to 46 percent of the Kaiserslautern Military Community's trash.

The Group protects the largest number of Americans living outside the United States, over 43,000 military, civilians and family members. Readiness, EOD and firefighters assigned to seven fire stations are ready at a moment's notice to handle any emergency. CEG troops responded to two major aircraft crashes and numerous "white powder" responses throughout Germany.

Recent Awards: The 86th CEG earned three Air Force-level awards for outstanding mission accomplishment in 2002: the Air Force Outstanding Civil Engineer Unit Award (large unit category), the CMSgt Larry R. Daniels Outstanding Military Superintendent Award and the General Thomas D. White Environmental Quality Award for Overseas. In addition, the group won seven USAFE-level CE awards, two USAFE-level annual personnel awards, 11 wing-level awards and six PME awards. The 86th CEG is proud to chant its motto whenever and wherever possible; "Biggest, Busiest, Best!"

Parent Unit: 86th Airlift Wing (U.S. Air Forces in Europe)

Location:

Ramstein Air Base, Germany

Group Commander:

Col Jeffrey L. Leptrone;
 86 CES Commander,
 Lt Col Steve Bradshaw;
 786 CES Commander,
 Lt Col Shane Stegman

Assigned Personnel:

535 military, 720 local
 nationals, 97 U.S. civilians

Environmental Award Winners

The Air Force Chief of Staff announced in December the winners of the 2002 General Thomas D. White Environmental Awards, which recognize outstanding efforts to preserve and enhance the environment. All but two of the winners will compete for the Secretary of Defense Environmental Security Awards in the same categories. There were no equivalent awards for the Environmental Quality (Reserve Component) and National Environmental Policy Act categories at the DoD level. An award presentation ceremony was held at the Pentagon May 7.

(Gil Dominguez, HQ Air Force Center for Environmental Excellence public affairs)

Environmental Quality Award (Industrial)

Tinker AFB, OK (AFMC)

Reserve Component

177 Fighter Wing, Atlantic City, NJ,
International Airport (ANG)

Overseas

Ramstein AB, Germany (USAFE)

Pollution Prevention Award (Non-Industrial)

Eglin AFB, FL (AFMC)

Pollution Prevention Award (Individual/Team Excellence)

Robins AFB, GA (AFMC)

Cultural Resources Management Award (All Installations)

611 CES, Elmendorf AFB, AK
(PACAF)

Cultural Resources Management Award (Individual/Team Excellence)

Karlene B. Leeper, 611 CES,
Elmendorf AFB (PACAF)

Natural Resources Conservation Award (Large Base)

Patrick AFB, FL (AFSPC)

National Environmental Policy Act Award (Team Excellence)

Andrews AFB, MD (AMC), and
Langley AFB, VA (ACC)

Major General Augustus M. Minton 1911-2003

Maj Gen (ret.) Augustus M. "Gus" Minton, former Director of Civil Engineering from 1957 to 1963, died Jan. 2 in Bradenton, FL. He was 91.

During his six years as Director, General Minton played a pivotal role in establishing the structure and mission of Air Force civil engineering as we know it today. He took great interest in the professional development of engineers and placed emphasis on professional registration and the development of professional training facilities. He was responsible for the functional name change from Air Installations to Civil Engineering, and he founded *Air Force Civil Engineer* magazine.

As Director, he oversaw completion of the U.S. Air Force Academy, construction of facilities to field the country's first intercontinental ballistic missiles, and a vast increase in Air Force family housing under the Capehart program. He developed an effective strategy for programming construction programs and for presenting and defending them before Congress, earning him the respect and admiration of civil engineers and Congressmen alike.

Born in 1911, General Minton was commissioned as a second lieutenant in the Army Corps of Engineers in 1933. He was an officer at the Civilian Conservation Corps camp at Fort Sheridan, IL, and helped respond to the tragic flood on the Mississippi and Missouri Rivers in 1937.

During World War II, he served with Army Air Forces Training Command. He talked about the time when training officials took over all the hotels in Miami Beach, FL, to accommodate the training mission. General Minton hosted a meeting chaired by Vice President Harry S. Truman to ensure the Army Air Forces got the support it required.

Following the war, the general served as the deputy chief of staff of administration for Twentieth Air Force in Guam. After earning a master's degree at Harvard Business School, he served two years as a comptroller in Alaska. From Alaska he returned to the training world, serving as Chief of Staff at HQ Air Training Command from 1951 to 1954 and later as base commander at Chanute Air Force Base, IL.

General Minton's six-year tenure as Director of Installations turned out to be the longest of any Air Force Civil Engineer to date. That enabled him, together with such Air Force leaders such as Chiefs of Staff Gen Thomas D. White and Gen Curtis LeMay, to have a major impact on the development and contributions of Air Force civil engineering.

One creative initiative of his was establishment of the "Cool School," an annual tour of northern tier bases designed to expose academic and corporate engineers to the challenges Air Force civil engineers faced in those locations.

Upon his departure from civil engineering in July 1963, the general served as the DCS for Administration and Logistics and later Chief of Staff at HQ Pacific Air Forces at Hickam AFB, HI. He ended his military career as Assistant to the Commander of Military Air Transport Service at



Major General Augustus M. Minton

Scott AFB, IL, in 1965.

After retirement from active duty, he worked for a number of engineering firms, most notably Day and Zimmerman in Philadelphia, PA, and Commonwealth Associates in Jackson, MI.

As a lasting tribute to the general's many contributions to Air Force civil engineering, the Maj Gen Augustus M. Minton Award for the best article published in *Air Force Civil Engineer* magazine each year is named in his honor.

The general was interred at Arlington National Cemetery. *(Lois Walker, HQ AFCEA Historian)*

Five Generations of CE Assignment Officers



Attending the retirement ceremony for Col James T. (Tom) Ryburn in March were five of the most recent civil engineer field grade assignment officers, including Colonel Ryburn. Having this many former Air Force Personnel Center CE assignment officers together was truly a rare event and one that will probably not be duplicated again.

Pictured from left to right are: Maj Tim Fuller (current AFPC CE assignment officer), Maj Doug Hammer (AFPC April 00–Aug. 02, currently at HQ ACC/CEO), Lt Col Tom Brown (AFPC June 98–June 00, currently at HQ ACC/CEV-2), Col Ken Shelton (AFPC May 91–June 94, currently at HQ ACC/CEO) and Col Tom Ryburn (AFPC July 98–July 91, recently retired ACC/CE-2). (Lt Col Scott Horan, HQ ACC/CEO)

Air Force Teams Compete in World Championship

Firefighting may not be a sport, but it certainly requires athleticism. Add the element of competition and it becomes, “the fastest two minutes in sports,” also known as the Firefighter Challenge World Championship.

Nine Air Force teams joined more than 800 civilian and military firefighters from around the world in the championship, Oct. 29 to Nov. 2, in Deerfield Beach, FL. Competitors, dressed in full fire fighting gear, rushed through a series of physically demanding firefighting activities for a timed score.

The Travis Air Force Base, CA, team was the top-placing U.S. team.

Travis took third in the relay event behind two teams from Canada and placed second in the team event, losing out to the Canadian team by

one second. SSgt Michael Melton, a Travis team member, finished third in the individual category.

Other Air Force teams included Altus and Vance AFBs, OK; Edwards AFB, CA; Little Rock AFB,

AR; Ramstein (two teams) and Spangdahlem Air Bases, Germany; RAF Mildenhall (two teams), UK; and the DoD Fire Academy, Goodfellow AFB, TX.

(MSgt Michael A. Ward, HQ AFCEA Public Affairs)



(Left) Almost there: Members of the Team Mildenhall fire department head toward the finish line in the relay event of the World Challenge XI competition. (Photos by Karen Abeyasekera)



(Above) Making it look easy: A1C Brett Davis, 100th CES fire department, pulls the 45-pound donut hose up five stories to the top of the tower before sprinting down to complete the rest of the course.

Mission Support Directorate at HQ AFSPC

Air Force Space Command at Peterson Air Force Base, CO, has undergone an internal reorganization to create a headquarters-level Mission Support Directorate. Col Connie Carmody, formerly The Civil Engineer at HQ AFSPC, has been appointed as the first director of the new organization. Col Gordon Janiec, formerly the Deputy Civil Engineer, is now The Civil Engineer for AFSPC.

2002 Colonel-Selects

Richard D. Bartholomew	* Maria J. Dowling	* Max E. Kirschbaum	Joseph H. Schwarz
Lemoyne F. Blackshear	* Timothy S. Green	Andrew Q. Knapp	Robert J. Staib
Wilfred T. Cassidy	Stuart D. Hartford	William H. Martin Jr.	Richard J. Wheeler
John R. Cawthorne	Juan Ibanez Jr.	Steven J. Moes	Eric J. Wilbur

* BPZ (below the promotion zone)

2002 Lieutenant Colonel-Selects

Michael A. Addison Jr.	Darren P. Gibbs	David A. Martinson	Derrek D. Sanks
James T. Allen	Mitchell R. Gordon	Jani L. McCreary	Richard E. Sloop Jr.
William M. Barrett	Fusun Grumbach	Thomas L. Mitchell Jr.	Kenneth P. Smith
Mark Bednar	James F. Hanlon	Pamela A. Moxley	Gregory L. Tures
Elizabeth A. Brown	Timothy P. Haynie	Lowell A. Nelson	Curt A. Van De Walle
Sherry M. Bunch	Richard H. Houghton	Brian A. Ouellette	Eva C. Wilson
David A. Caffee	Russell R. Hula	John C. Prater	Robert E. Yates
Daniel S. Costello Jr.	Derek A. Jeffries	Michael D. Prazak	
James D. Eaton III	Jeffry D. Knippel	Jeffrey N. Rumrill	
Christopher E. Findall	Steven T. Kuennen	Mark A. Ruse	

2002 Major-Selects

Stacey L. Anason	James S. Griffin	George Moraczewski
Michael J. Beach	Pamela S. Grover	Charles Y. Murnieks
Matthew P. Benivegna	Kelly L. Harshbarger	Dayton O. Nooner III
Arno J. Bischoff	Philip C. Hicks	Shannon E. O'Boyle
Craig A. Blood	Alejandro Hinojos	Jarrett G. Purdue
Thomas A. Bongiovi	Michal D. Holliday	Anthony Riley
Randy L. Boswell	Eric P. Hoversten	Matthew D. Robinson
Joseph D. Brands	Matthew B. Hutchings	James S. Romasz
Suzanne E. Braunschneider	Timothy G. Imdieke	Richard T. Sanders
Stephanie W. Bronson	Matthew G. Joganich	Michael T. Sheredy
Bradford E. Buckman	Susan E. Kennedy	Mark J. Shoviak
Dawn M. Campbell	Chon H. Kim	William E. Sitzabee
Peter A. Domahoski	Christian J. Knutson	Eric R. Sosa
Teri L. French	Erik J. Lagerquist	Armand C. Stafford
Douglas W. Gilpin	Mark S. Laudenslager	Eric D. Swenson
Stephen T. Grace	Louis E. Lilley	Marc R. Vandeveer
Walter D. Graves	Timothy E. Lockhart	Eric W. Waters
Matt E. Greene	Jeffrey M. McBride	

2002 Chief Master Sergeant-Selects

Todd W. Barnes	Fredrick W. Green	Jon D. Saiers
Jerry L. Barnett Jr.	Kenneth Helgersson	Terry D. Sears
Michael L. Bernard	Alfred E. Hicks	William W. Shelton
Brian C. Bridgeford	Eric L. Hogan	Richard K. Singhas
Benjamin E. Brooks	Paul S. Kaplan	Randall K. Skinner
Bruce A. Bulluck	Mark L. Lewis	Jewel Stevens III
Carolyn V. Byrd	Nancy A. McHugh	Franklin C. Tallman
David T. Donan	Richard O. Miko	Joseph D. Trigg
David L. Ehlers	Timothy S. Prentice	Clarence H. Walsh
Kevin J. Fraher		



8th Civil Engineer Squadron

The 8th CES is a 335-person squadron that supports America's premier fighter wing in the Pacific — The Wolf Pack. Tracing its history as far back as 1961, the Red Devils are the marquee unit for the entire wing. As the foundation of the wing's combat airpower, the CE Red Devils provide critical infrastructure repair, dynamic emergency services, airfield damage repair, and force survival and readiness training and capabilities. Maintaining a high degree of combat readiness, the squadron continues to advance environmental security and stewardship while enhancing the base's development and community planning.

Parent Unit:

The Wolf Pack, 8th Fighter Wing
(Pacific Air Forces)

Location:

Kunsan Air Base, Republic of
Korea

Commander:

Lt Col Jose A. Mata

Assigned Personnel:

236 military and 99 South
Korea civilians

Wing Mission:

Defend the Base – Accept
Follow-on Forces – Take the
Fight North!!

Squadron Nickname:

CE Red Devils

Recent Accomplishments: One of the lead bases to implement the Air Force's new Chemical Warfare CONOPS base-wide. The squadron simultaneously revolutionized the way it plans for the future and accomplishes work today with *Kunsan 2015* — its base development vision. The plan continues to transform Kunsan Air Base into an "assignment of choice," as stated by both the Air Force Chief of Staff and the commanding general of U.S. Forces Korea. The squadron also maintains a close relationship with Republic of Korea Air Force engineers.

Additionally, the 8th CES has developed alternatives to executing major projects and programs by using the Air Force Center for Environmental Excellence as an adjunct to the Corps of Engineers. This new relationship has increased the cost effectiveness of projects and dramatically enhanced responsiveness to the mission and its customers.

Unique Requirements: A heavy workload combined with constant annual turnover creates unique challenges that are overcome by working together. The 8th CES enjoys high morale and even higher esprit de corps. "One Squadron — One Family" is the philosophy that keeps the unit — civilian and military — strong. As part of the "11th AEF," the CE Red Devils are already "deployed" to where they will fight. This sobering reality bonds the unit and brings out the warrior ethos. While it is a short-tour assignment, the number of those who choose to do another tour continues to increase every year. Once a Red Devil, always a Red Devil. The legacy it brings to all civil engineers is one of excellence and commitment.

Unit Spotlight

Laying the Groundwork for War

Civil engineers do their part to support the build up at forward deployed locations for Operations ENDURING FREEDOM and IRAQI FREEDOM.



Ann Misty Collinson, 321st ECES, performs an operations check on an M22 chemical detector. (Photo by SSgt Tony Tolley) (Inset, top) SrA David Dottavio, TSgt Reagan Musser and TSgt Mike Markley, 320th ECES, strap down support braces while preparing to lower a wall into the side of a protective bunker being built Feb. 4. (Photo by SSgt Matthew Hannen) (Inset, center) Members of the 410th ECES install a product water hose into a 20,000 gallon storage bladder Feb. 16. (Photo by SSgt Lanie McNeal) (Inset, bottom) Firefighters from the 410th ECES prepare to enter a C-130 cargo aircraft during an egress training exercise. (Photo by SSgt Bennie Davis)